2008

Texas Cancer Facts & Figures

A sourcebook for planning and implementing programs for cancer prevention and control

American Cancer Society®
High Plains Division

Cancer Prevention & Research Institute of Texas

CANCER THERAPY & RESEARCH CENTER
UT HEALTH SCIENCE CENTER™
SAN ANTONIO

TEXAS
COMPREHENSIVE CANCER CONTROL PROGRAM

Dan L. Duncan Cancer Center
at Baylor College of Medicine

TEXAS CANCER information
texascancer.info

Texas Cancer Registry

TEXAS
Department of State Health Services

THE UNIVERSITY OF TEXAS
MD ANDERSON CANCER CENTER
Making Cancer History®

Acknowledgements

This publication was made possible through the collaborative efforts of:

American Cancer Society, High Plains Division, Inc.

Cancer Prevention and Research Institute of Texas

Cancer Therapy & Research Center at The University of Texas Health Science Center at San Antonio

Dan L. Duncan Cancer Center at Baylor College of Medicine

Texas Cancer Information

Texas Cancer Registry, Center for Health Statistics and Comprehensive Cancer Control Program, Texas Department of State Health Services

University of Texas M. D. Anderson Cancer Center

The data and other support for portions of this report have been provided through the organizations and individuals listed below. This document would not have been possible without their invaluable assistance. *Texas Cancer Facts & Figures 2008* provides an overview of cancer in Texas and is not intended to replace the relevance or need for reports by the individual organizations. Special thanks are extended to:

American Cancer Society, High Plains Division, Inc.
Cindy Antolik
James Gray
Karen Torges*

Cancer Prevention and Research Institute of Texas
Sandra Balderrama, MPA, BSW*

Cancer Therapy & Research Center
Jill B. Byrd
Tyler J. Curiel, MD
Brad H. Pollock, MPH, PhD*

Dan L. Duncan Cancer Center
Sonora Hudson, MA
David M. Latini, PhD*
Ted J. Yank, MHA

M. D. Anderson Cancer Center
Lewis E. Foxhall, MD*
Alison Ruffin

Texas Cancer Data Work Group
Debra Patt, MD, MPH*

Texas Cancer Information
Carolyn G. Bernard, CPHIMS*
Elisa Furlan
Yvonne Young

Texas Department of State Health Services

Texas Cancer Registry
Corbin Choate
Brenda Mokry, MEd
David Risser, PhD, MPH
Melanie Williams. PhD*

Center for Health Statistics
Michelle L. Cook, MPH
John Hugg, MA
Anna Vincent

Comprehensive Cancer Control Program
Juanita Salinas, MSW*

Breast and Cervical Cancer Services
Tricia Jones

Nutrition, Physical Activity & Obesity Prevention Program
Lindsay Rodgers, MA, RD, LD

Tobacco Prevention and Control Program
Penny Harmonson

Texas Health and Human Services Commission
Edli E. Colberg, PhD

Managing Editor
Nancy S. Weiss, MPH, PhD*

Graphics
Arc Graphic Design,
Janet Daghri

Additional acknowledgement and appreciation is extended for use of information available through official publications of the American Cancer Society, National Home Office.

**Member of* Texas Facts & Figures *Steering Committee*

Suggested Citation: American Cancer Society, High Plains Division, Inc. *Texas Facts & Figures 2008*. Austin, TX: American Cancer Society, High Plains Division, 2008.

Also available at *www.cancer.org/texascancercontrol*.

August 2008

Dear Reader

We are especially pleased to present to you the 2008 edition of *Texas Cancer Facts & Figures.* This historic document represents the collaboration of several key Texas partners including:

- **American Cancer Society, High Plains Division**
- **Cancer Prevention and Research Institute of Texas**
- **Cancer Therapy & Research Center (CTRC) at The University of Texas Health Science Center at San Antonio**
- **Comprehensive Cancer Control Program, Texas Department of State Health Services**
- **Dan L. Duncan Cancer Center at Baylor College of Medicine**
- **Texas Cancer Information**
- **Texas Cancer Registry, Texas Department of State Health Services and**
- **The University of Texas M. D. Anderson Cancer Center**

This partnership publication is intended to assist healthcare organizations, health professionals, community groups, and others who are working to reduce the burden of cancer in Texas. It may also be of interest to policy-makers, advocates, and news organizations who seek detailed, easy-to-read information about the impact of cancer on Texans.

The challenge of cancer is clear. It is the second leading cause of death in the state and nation, soon to be the leading cause of death. Thousands of families in Texas are affected each year when someone they love hears the words "you have cancer."

The key partners listed above and other partners are committed to providing accurate, unbiased information that will help direct the actions we take at the national and state levels and in local communities to save lives, decrease incidence and mortality rates, and improve the quality of life for all cancer survivors.

This document, created by public health officials and partners, is primarily intended to serve the public. It is a companion piece to the *Texas Cancer Plan* and *Making the Texas Cancer Plan a Reality: Cost Estimates for Implementation 2008.* Together, these documents provide the overall scope of the cancer problem in Texas; outline the specific initiatives and strategies needed to prevent, detect, and treat cancer; provide help to those who face these diseases; and serve as a framework for the human and financial investments needed to affect a positive change.

We hope you find *Texas Cancer Facts & Figures 2008* a useful tool in planning and implementing collaborative programs aimed at reducing the burden of cancer on Texans.

Table of Contents

Tables

Figures

Cancer in Texas: An Overview

Defining Cancer

Cancer is a large group of diseases characterized by uncontrolled growth and spread of abnormal cells. Failure to control the spread can result in death. Cancer can be caused by external (including tobacco smoke, chemicals, radiation, infectious organisms), internal (including hormones, immune conditions, genetics), and personal behavior (including tobacco and alcohol use, unprotected sun exposure, poor nutrition, and physical inactivity) factors. These factors can act together or in sequence to initiate or promote cancer development. Many cancers can be cured if detected and treated promptly, and many others can be prevented by lifestyle changes, especially avoidance of tobacco.

Number of New Cases and Deaths Expected to Occur This Year

It is estimated that more than 1.4 million people in the United States will be diagnosed with cancer in 2008 and almost 600,000 will die from these diseases.[1] In Texas alone, it is estimated that 97,000 individuals will be diagnosed with cancer in 2008, and another 38,000 will die from these diseases (Table 1). Table 2 provides an overview of the average annual number of new cases (incidence) and deaths (mortality) for standard cancer sites in Texas.

As in the United States, four cancer sites account for more than half of Texas' cancer burden. These include the lung and bronchus, colon and rectum (also referred to as colorectal), breast (in women), and prostate cancer. Each year, these sites together account for 45,400 new cases of cancer and 17,000 cancer deaths in Texans (Figure 1). The total number of lung and bronchus cancer deaths each year exceeds deaths from breast, prostate, and colorectal cancers combined. Compared with the entire United States, Texas incidence and mortality rates for these four cancer sites for both genders and all races combined are somewhat lower, partly because of the different racial and ethnic make-up of the state (Figure 2).[2]

Cancer is the second leading cause of death in the United States and is expected to become the leading cause of death within the next decade. Cancer also is the second leading cause of death in Texas (Figure 3). Among Texas adults below the age of 75, cancer is already the leading cause of death. When comparing leading causes of death to "actual" causes of death—defined as lifestyle and behavioral factors that contribute to disease—smoking, poor nutrition, and physical inactivity contribute to more than one third of all deaths and two thirds of cancer deaths (Table 3).

Progress and hope, however, also are evident. In Texas, over the 10-year period 1996-2005, total cancer mortality rates have declined 1% to 2% annually (annual percent change) in both men and women, similar to the national trend (Figure 4).[3] Significant annual declines in death rates are seen for breast cancer in women, prostate cancer in men, and colorectal and lung cancers in both sexes. In contrast, overall cancer incidence rates in Texas have not declined as greatly as those

→

Table 1. Projected Number of New Cancer Cases and Deaths, Selected Cancer Sites, Texas, 2008

Cancer Sites	Incidence Counts (New Cases)	Percentage of Total Cancer Incidence	Mortality Counts (Deaths)	Percentage of Total Cancer Mortality
Breast (Female)	15,132	15.6	2,780	7.3
Cervix	1,081	1.1	397	1.0
Colon and Rectum	9,879	10.2	3,646	9.6
Lung and Bronchus	12,117	12.5	10,822	28.5
Melanoma of the Skin	3,896	4.0	547	1.4
Prostate	15,506	15.9	1,895	5.0
All Sites	**97,281**	**100.0**	**38,037**	**100.0**

All sites includes all malignant cancers and in situ bladder cancer. Projected 2008 cancer cases are estimated by applying California 2000-2004 age-, sex-, and race/ethnic-specific average annual incidence rates to the 2008 Texas population. Projected 2008 cancer deaths are estimated by applying Texas 2003-2004 age-, sex-, and race/ethnic-specific average annual mortality rates to the 2008 Texas population.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry 1995-2005 incidence, based on 2008 NPCR-CSS submission, 1-31-2008. Mortality data from Center for Health Statistics, Texas Department of State Health Services.

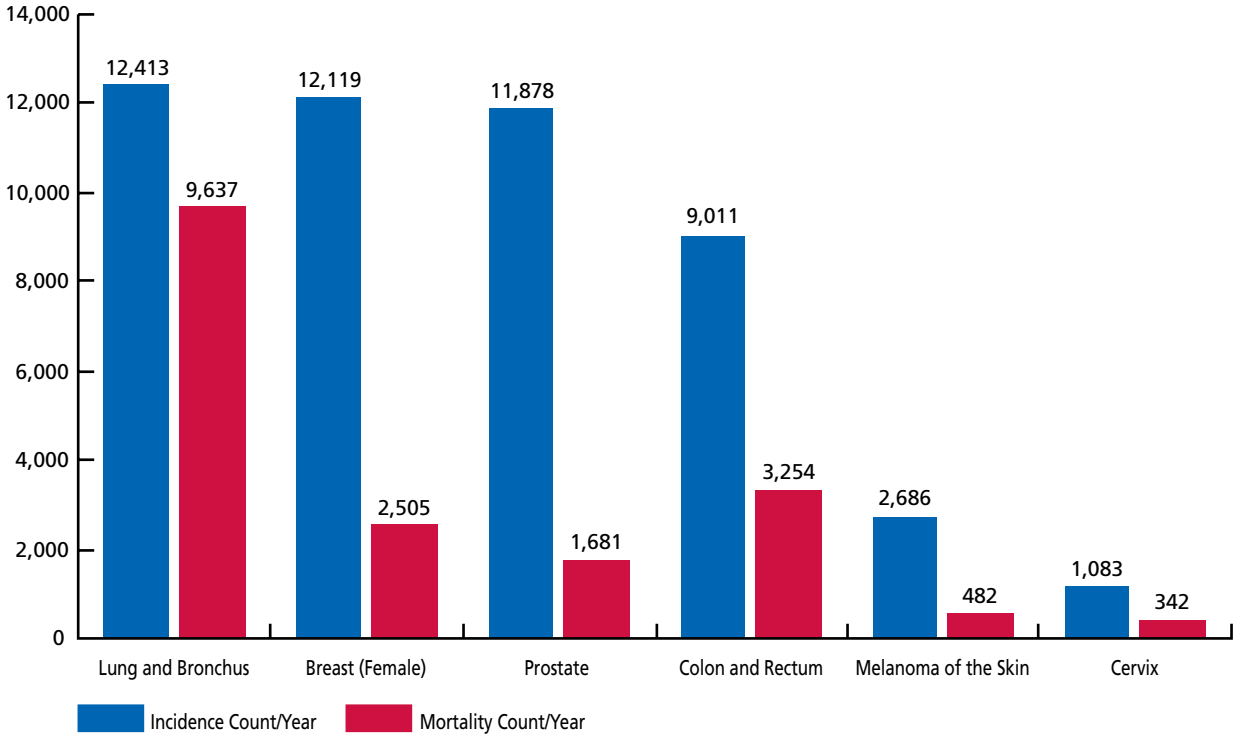
Table 2. Average Annual Incidence and Mortality Counts and Rates, Texas, 2001-2005

	INCIDENCE					MORTALITY				
	Male Rate	Male Cases Avg./ Year	Female Rate	Female Cases Avg./ Year	Total Cases Avg./ Year	Male Rate	Male Deaths Avg./ Year	Female Rate	Female Deaths Avg./ Year	Total Deaths Avg./ Year
All Sites	**542.0**	**45,114**	**389.2**	**40,777**	**85,891**	**231.8**	**17,983**	**152.2**	**15,892**	**33,875**
Oral Cavity and Pharynx	16.2	1,453	5.6	585	2,038	4.2	358	1.4	151	509
Esophagus	7.6	630	1.7	174	804	6.7	541	1.5	156	697
Stomach	10.1	827	4.9	516	1,343	6.2	491	3.1	330	821
Small Intestine	2.2	183	1.7	179	362	0.4	35	0.3	35	70
Colon and Rectum	58.9	4,812	40.2	4,199	9,011	21.9	1,699	14.7	1,555	3,254
Anus, Anal Canal and Anorectum	1.2	111	1.5	156	266	0.1	10	0.2	21	31
Liver and Intrahepatic Bile Duct	11.7	1,019	4.3	448	1,467	9.8	815	4.1	427	1,242
Gallbladder	0.8	59	1.4	145	204	0.5	38	0.8	87	125
Other Biliary	1.9	149	1.3	133	282	0.5	39	0.4	43	82
Pancreas	12.7	1,027	9.5	988	2,015	11.8	933	8.6	898	1,832
Larynx	7.6	655	1.4	141	796	2.5	201	0.4	43	244
Lung and Bronchus	89.6	7,180	51.1	5,232	12,413	72.6	5,690	38.5	3,946	9,637
Pleura	0.0	3	0.0	2	5	0.0	2	0.0	3	5
Bones and Joints	1.2	118	0.9	100	218	0.7	60	0.4	46	106
Soft Tissue including Heart	3.5	323	2.3	252	575	1.5	133	1.1	118	250
Melanoma of the Skin	18.3	1,596	10.2	1,089	2,686	3.8	310	1.6	172	482
Breast	1.5	130	115.5	12,119	12,249	0.3	20	23.8	2,505	2,525
Cervix	~	~	10.1	1,083	1,083	~	~	3.2	342	342
Corpus and Uterus, NOS	~	~	18.5	1,933	1,933	~	~	3.6	369	369
Ovary	~	~	12.5	1,311	1,311	~	~	8.0	828	828
Vagina	~	~	0.8	83	83	~	~	0.3	28	28
Vulva	~	~	2.0	209	209	~	~	0.4	39	39
Prostate	144.6	11,878	~	~	11,878	25.5	1,681	~	~	1,681
Testis	4.8	550	~	~	550	0.3	31	~	~	31
Penis	1.1	90	~	~	90	0.3	21	~	~	21
Urinary Bladder	30.0	2,314	7.3	759	3,073	6.3	445	2.0	211	656
Kidney and Renal Pelvis	21.4	1,867	11.5	1,206	3,074	6.9	561	3.2	335	897
Eye and Orbit	1.0	93	0.7	72	165	0.1	7	0.1	7	14
Brain and Other Nervous System	7.9	754	5.7	611	1,365	5.5	490	3.6	380	870
Thyroid	4.6	441	12.2	1,311	1,753	0.5	43	0.5	53	96
Hodgkins Lymphoma	2.8	288	2.1	236	524	0.6	51	0.4	41	91
Non-Hodgkins Lymphoma	22.2	1,898	16.2	1,688	3,586	8.8	681	5.8	605	1,287
Myeloma	7.5	615	5.1	525	1,140	4.4	339	3.1	323	663
Leukemias	16.9	1,436	10.3	1,093	2,530	10.0	776	5.6	588	1,365
Miscellaneous	23.8	1,894	15.9	1,666	3,559	14.5	1,125	9.2	970	2,095

Notes: Rates are average annual rates per 100,000 and age-adjusted to the 2000 U.S. standard population.
Average annual cases and deaths are rounded to the nearest whole.
All sites includes in-situ bladder, all other in-situ cases are excluded. Melanoma is under reported.
~Statistic not displayed if site is sex-specific.
NOS = Not otherwise specified.

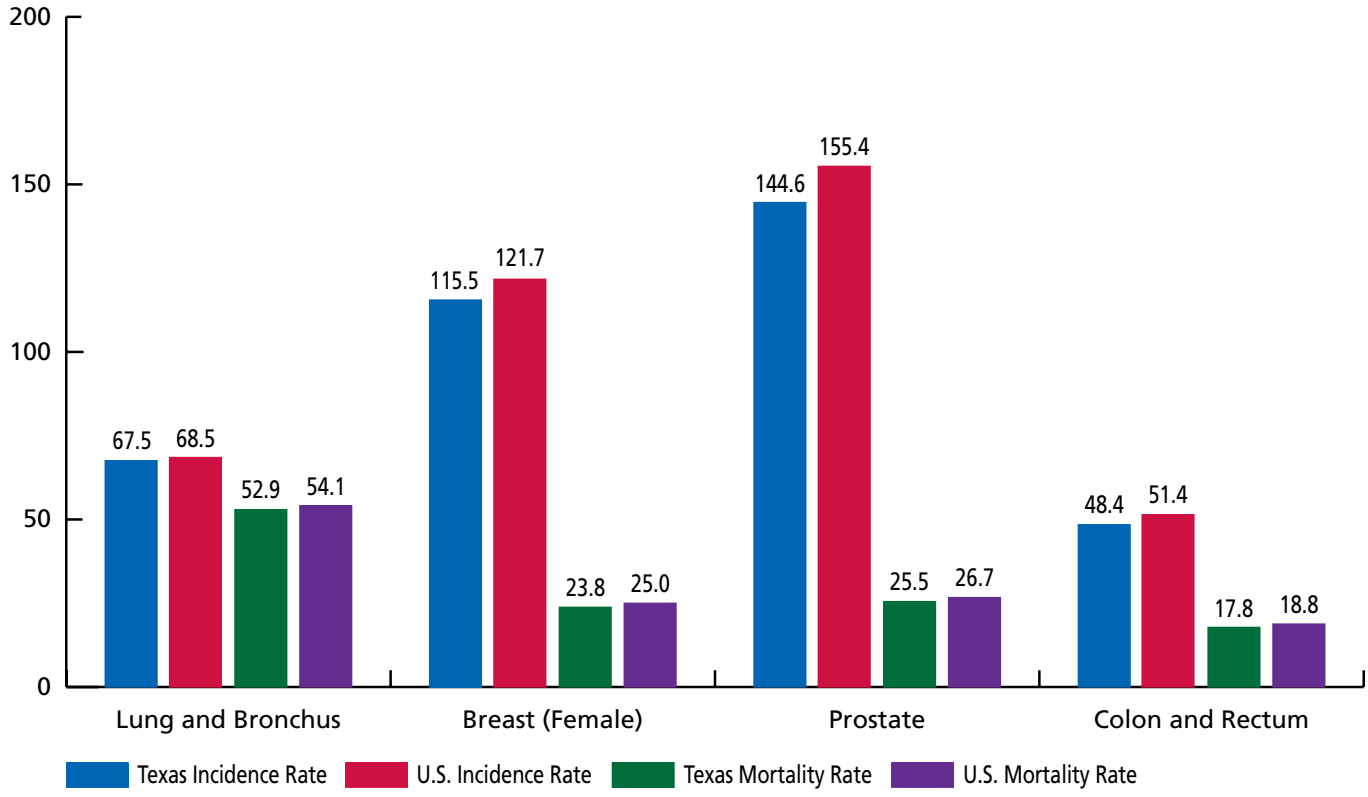
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS submission, 1-31-2008. Mortality data from Center for Health Statistics, Texas Department of State Health Services.

Figure 1. Average Annual Incidence (New Cases) and Mortality (Deaths) Counts for Selected Cancers, Texas, 2001-2005



Notes: Average annual cases and deaths are rounded to the nearest whole. Melanoma cases are under-reported.
Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR-CSS submissioin 1-31-2008. Mortality data from Center of Health Statistics, Texas Department of State Health Services.

Figure 2. Average Annual Incidence and Mortality Rates of Leading Cancers in Texas, 2001-2005 and the U.S., 2002-2004



Rates are average annual rates per 100,000, age-adjusted to the 2000 U.S. standard population. In situ cases are excluded.
Source: US Cancer Statistics - 1999-2004, Centers for Disease Control and Prevention, Texas Cancer Registry, 1995-2005, incidence based on 2008 NPCR-CSS Submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

have for the nation. Cancer sites with significantly increasing trends in incidence include thyroid, skin (melanoma), liver and intrahepatic bile duct, and kidney and renal pelvis in both Texas males and females (Figure 5).

Saving More People

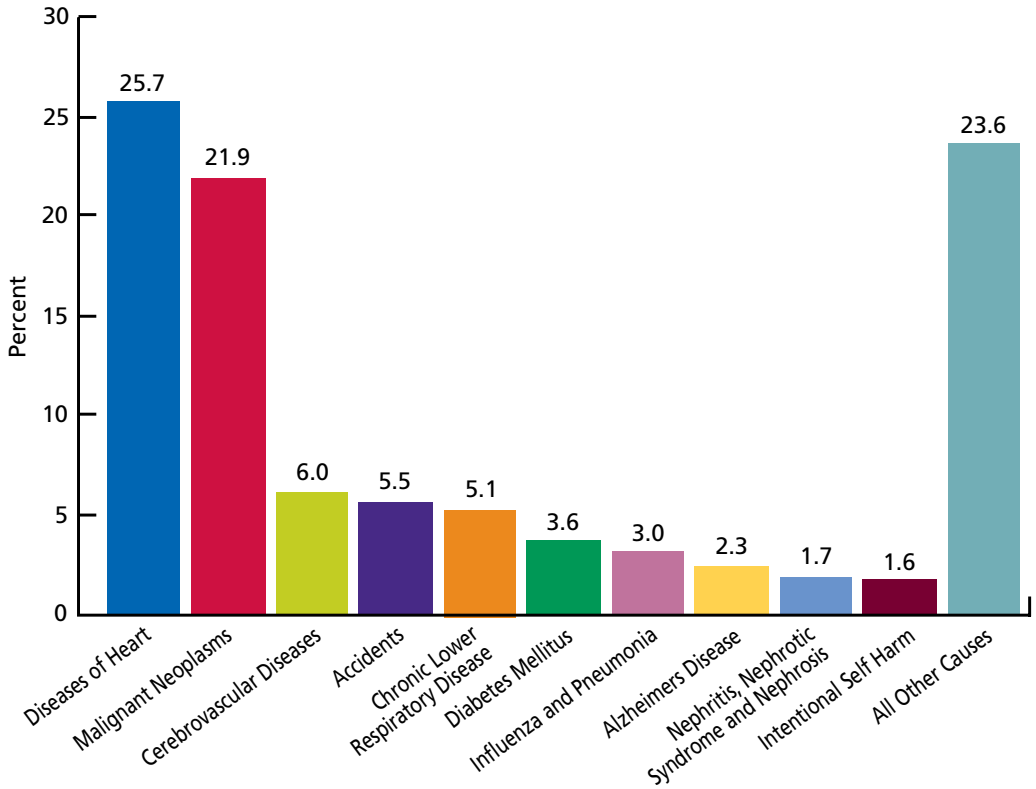
Many cancers can be cured if detected and treated promptly, while others can be controlled for many years with appropriate treatment. In addition, many cancers can be prevented by personal behavior changes. All cancers caused by cigarette smoking and heavy use of alcohol can be prevented completely. Of the nearly 34,000 lives lost to cancer in Texas each year between 2001 and 2005, it is estimated that 10,200 (approximately 30 percent of total) were lost because of tobacco use. Scientific evidence suggests that it may be possible to reduce cancer deaths by up to one third by improving nutrition and physical activity behaviors, and by maintaining a body weight within the recommended range. Many new cases and deaths from colon and rectum cancers are preventable by such improvements in nutrition and physical activity and by timely use of existing colorectal cancer screening tests.

Table 3. Leading Causes of Death and Actual Causes of Death in the United States, 2000

Leading Causes of Death* United States, 2000	Percentage (of all deaths)	Actual Causes of Death† United States, 2000	Percentage (of all deaths)
Heart Disease	30.0	Tobacco	18.1
Cancer	23.0	Poor Diet/Physical Inactivity	16.6
Stroke	7.0	Alcohol consumption	3.5
Chronic lower respiratory disease	5.0	Microbial agents (e.g., influenza, pneumonia)	3.1
Unintentional Injuries	4.0	Toxic agents (e.g., pollutants, asbestos)	2.3
Diabetes	3.0	Motor-vehicles	1.8
Pneumonia/influenza	3.0	Firearms	1.2
Alzheimer's disease	2.0	Sexual behavior	0.8
Kidney disease	2.0	Illicit drug use	0.7

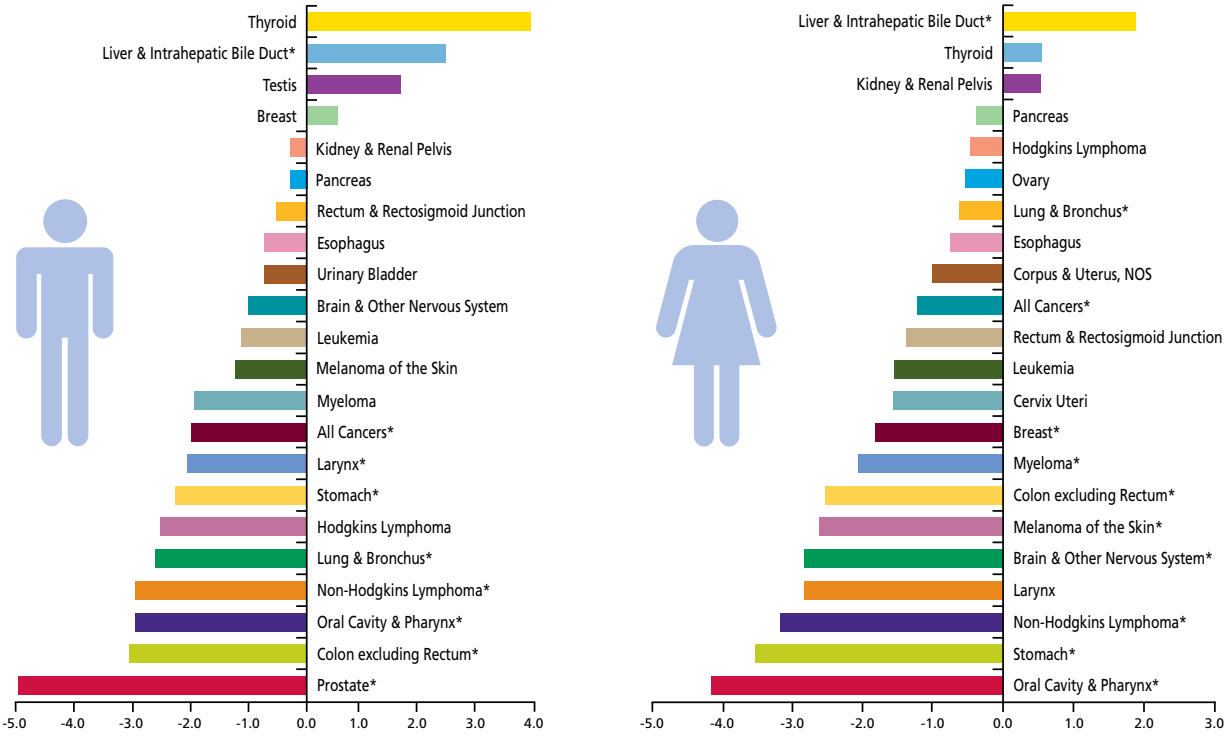
*Miniño AM, Arias E, Kochanek KD, Murphy SL, Smith BL. Deaths: final data for 2000. National Vital Statistics Reports 2002; 50(15):1–120.
†Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. JAMA. 2004;291(10):1238-1246.

Figure 3. Ten Leading Causes of Death for Residents of Texas, 2005



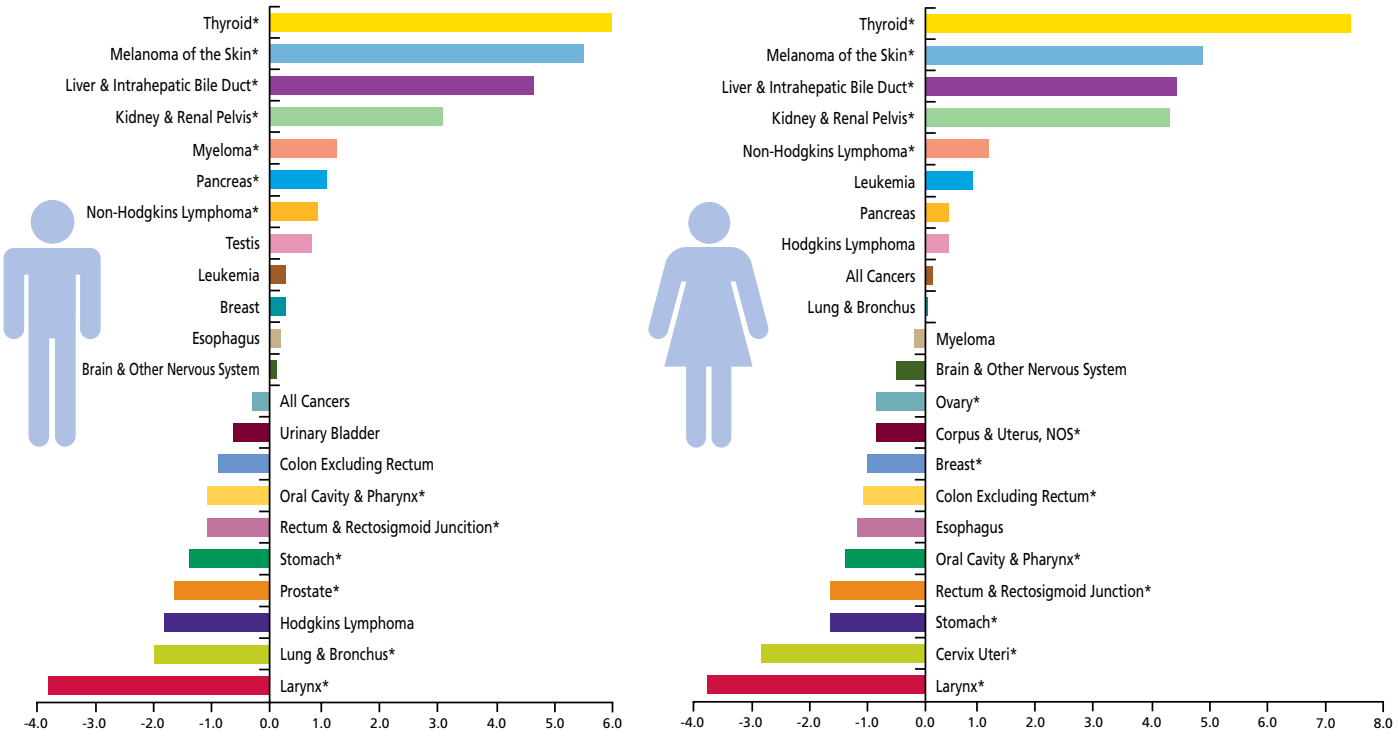
Source: Center for Health Statistics, Texas Department of State Health Services.

Figure 4. Annual Percent Change (APC) in Age-Adjusted Mortality Rates for Selected Sites, All Races, Texas 1996-2005



Notes: APC is the annual percent change over the time period and was calculated using the weighted least squares method.
* The APC is significantly different from zero ($p<0.05$). NOS = Not otherwise specified.
Source: Texas Department of State Health Services, Texas Cancer Registry and Center for Health Statistics.

Figure 5. Annual Percent Change (APC) in Age-Adjusted Incidence Rates for Selected Sites, All Races, Texas 1996-2005



Notes: APC is the annual percent change over the time period and was calculated using the weighted least squares method.
* The APC is significantly different from zero ($p<0.05$). NOS = Not otherwise specified.
Source: Texas Department of State Health Services, Texas Cancer Registry.

Number of People Alive Today Who Have or Had Cancer

The National Cancer Institute (NCI) estimates that there are nearly 12 million cancer survivors in the United States.[4] Some of these individuals are cancer-free, while others still have cancer and may be undergoing treatment. In January 2005, an estimated 417,000 Texans were living with a previously diagnosed cancer (in the last 10 years). Breast and prostate cancers account for almost 187,000 (45%) of all prevalent cancers in Texas (Table 4). Over 40,000 living Texans have a history of cancer of the colon and rectum.

Improvements in Cancer Survival

We have made significant progress in helping individuals survive cancer through prevention, early detection, and treatment. For all cancers combined, the 5-year relative survival (a measure of survival that also considers normal life-expectancy factors such as dying of heart disease, accidents, and diseases of old age) has increased from 50% in the 1970's to 66% for the most recent period of data (1996-2004).[3] Improvements in survival have continued over the last 30 years for most cancers, with 5-year relative survival of 90% or greater for melanoma of the skin and cancers of the thyroid, prostate and testis (Table 5). Although there has been some improvement, survival continues to be poor for patients with cancers of the esophagus, liver, pancreas and lung.

Survival by Cancer Stage of Disease at Diagnosis

One of the strongest predictors of survival is the degree to which the cancer has spread at the time of diagnosis, referred to as the stage at diagnosis. Cancer staging, based on a summary classification developed by the NCI's Surveillance, Epidemiology and End Results (SEER) program, refers to the extent of disease categorized as in situ, localized, regional, and distant (see definitions below). Generally, the earlier the →

Table 4. Prevalence* of Cancer in Texas, 2005

Site	Total	Males	Females
Brain, Other Nervous System	4,278	2,312	1,966
Breast	90,149	511	89,638
Cervix	6,785	0	6,785
Colon and Rectum	40,300	20,475	19,825
Corpus and Uterus, NOS	15,867	0	15,867
Esophagus	1,372	1,039	333
Hodgkins Disease	4,427	2,344	2,083
Kidney and Renal Pelvis	10,566	6,342	4,224
Larynx	3,169	2,543	626
Leukemia	9,492	5,445	4,047
Liver and Intrahepatic Bile Duct	1,449	993	456
Lung and Bronchus	15,755	7,496	8,259
Melanoma of the Skin	21,965	11,418	10,547
Myeloma	3,213	1,769	1,444
Non-Hodgkins Lymphoma	17,222	9,015	8,207
Oral Cavity and Pharynx	8,616	5,744	2,872
Ovary	5,563	0	5,563
Pancreas	1,601	791	810
Prostate	96,372	96,372	0
Stomach	3,205	1,828	1,377
Testis	5,185	5,185	0
Thyroid	12,650	2,718	9,932
Urinary Bladder	18,013	13,536	4,477
All Sites	**417,128**	**207,828**	**209,300**

*10-Year Limited Duration Prevalence on January 1, 2005
Persons alive who were diagnosed with cancer in the last 10 years. SEER Prevalence estimates for SEER 13 on January 1, 2005 were applied to the Texas population on January 1, 2005, by age, sex and race, to obtain a projected prevalence in the Texas population. Texas population on January 1, 2005 was the average of the mid-year 2004 and mid-year 2005 population estimates.
Race adjustment of prevalence was based on non-Hispanic white, Hispanic white, Black, and all other race groups combined.
NOS = Not otherwise specified

Table 5. National Trends in Five-Year Relative Survival (%) SEER, 1975-1977 and 1996-2004

	1975-1977 Percent	1996-2004 Percent
Brain and ONS	24	35
Breast (FEMALE)	75	89
Cervix	70	73
Colon and Rectum	51	65
Corpus and Uterus, NOS	88	84
Esophagus	5	17
Hodgkins Lymphoma	74	85
Kidney and Renal Pelvis	51	67
Larynx	67	64
Leukemia	35	51
Liver & Intrahepatic Bile Duct	4	11
Lung & Bronchus	13	16
Melanoma of the Skin	82	92
Non-Hodgkins Lymphoma	48	65
Oral Cavity & Pharynx	53	60
Ovary	37	46
Pancreas	3	5
Prostate	69	99
Stomach	16	25
Testis	83	96
Thyroid	93	97
Urinary Bladder	74	81
All Sites	**50**	**66**

Note: Rates are adjusted for normal life expectancy and are based on cases diagnosed in the SEER 9 areas followed through 2005.
Percentages, rounded to the nearest whole, are from NCI data and are not specific to Texas survival data. These rates provide some indication about the average survival experience of cancer patients in a given population. They are less useful in predicting individual progress and should be applied with caution.
ONS = Other nervous system; NOS = Not otherwise specified
Source: Surveillance, Epidemiology, and End Results (SEER) Program, Cancer Statistics Review 1975-2005, National Cancer Institute, Bethesda, MD, 2008.

stage, the better the 5-year relative survival rate for most cancers (Table 6). In the United States, survival also varies by race even when considering the stage at diagnosis. Within each stage category, whites had better 5-year relative survival than blacks for the major cancer sites shown in Table 7. Among Texas residents, the number of cancers diagnosed at an early stage (in situ and localized) differs between racial and ethnic groups, with non-Hispanic whites being diagnosed more often at the earliest stage of cancer. Staging by racial and ethnic groups for leading cancer sites is provided in cancer-site sections to follow. Although we have made progress in helping individuals survive cancer, we still have a long way to go. Following screening guidelines for cancer prevention and early detection (page 44) could help save many lives lost to cancer.

Understanding Cancer Stage of Disease

The stage of a cancer is based on the primary tumor's size and whether it has spread to lymph nodes or other areas of the body.

In situ - describes a neoplasm that is non-invasive and confined to a small circumscribed area within the tissue of origin. The tumors have not invaded beyond the basement membrane. An in situ lesion can be diagnosed only by microscopic examination.

Localized - indicates a neoplasm that has not spread beyond the organ of origin. The tumor may be widely invasive within the organ of origin (primary site) and may even metastasize within the organ of origin. It can still be considered localized as long as there is no extension beyond the outer limits of the primary organ and no evidence of metastasis elsewhere within the body.

Regional - indicates a tumor that has spread to adjacent organs or tissues or to lymph nodes surrounding the primary organ. Remote spread must be reasonably ruled out.

Distant - refers to a neoplasm that has extended to remote areas from the primary tumor by metastasis either through the blood system, distant lymph nodes, or by implantation metastasis.

Unstaged or Unknown - used when there is insufficient information to determine the stage or extent of the disease at diagnosis.

Table 6. Five-Year Relative Survival (%) by Stage at Diagnosis, SEER, 1996-2004

	All Stages	Localized	Regional	Distant
Breast (FEMALE)	89	98	84	27
Cervix	71	92	56	17
Colon and Rectum	64	90	68	11
Corpus and Uterus, NOS	83	96	68	24
Esophagus	16	34	17	3
Kidney & Renal Pelvis	67	90	61	10
Larynx*	63	81	50	24
Liver & Intra-hepatic Bile Duct	12	24	8	3
Lung & Bronchus	15	50	21	3
Melanoma of the Skin	91	99	65	16
Oral Cavity	60	82	53	28
Ovary	46	93	71	31
Pancreas	5	20	8	2
Prostate **	99	100	**	32
Stomach	25	61	25	4
Testis	96	99	96	71
Thyroid	97	100	97	58
Urinary Bladder	80	93	45	6

Note: Rates are adjusted for normal life expectancy and are based on cases diagnosed in the SEER 17 areas from 1996-2004, followed through 2005. California (excluding SF/SJM/LA), Kentucky, Louisiana and New Jersey contribute cases for diagnosis years 2000-2004 only.
Percentages, rounded to the nearest whole, are from NCI data and are not specific to Texas survival data. These rates provide some indication about the average survival experience of cancer patients in a given population. They are less useful in predicting individual progress and should be applied with caution.
ONS = Other nervous system; NOS = Not otherwise specified
* Survival is for the period 1996-2003, followed through 2004.
** The rate for localized stage for prostate cancer represents localized and regional stages combined.
Source: Surveillance, Epidemiology, and End Results (SEER) Program, Cancer Statistics Review 1975-2005, National Cancer Institute, Bethesda, MD, 2008.

Table 7. Five-Year Relative Survival (%) for Selected Sites by Race and Stage at Diagnosis, SEER, 1996-2004

	All Stages	Localized	Regional	Distant
Breast (FEMALE)				
White	90	99	85	29
Black	77	93	72	17
Cervix				
White	73	93	57	18
Black	62	86	48	9
Colon and Rectum				
White	65	90	69	11
Black	55	84	61	8
Lung & Bronchus				
White	16	50	21	3
Black	12	41	18	3
Melanoma of the Skin				
White	91	99	65	15
Black	77	95	47	24
Prostate **				
White	100	100	**	31
Black	95	100	**	29

Note: Rates are adjusted for normal life expectancy and are based on cases diagnosed in the SEER 17 areas from 1996-2004, followed through 2005. California (excluding SF/SJM/LA), Kentucky, Louisiana and New Jersey contribute cases for diagnosis years 2000-2004 only.
Percentages, rounded to the nearest whole, are from SEER survival data and are not specific to Texas.These rates provide some indication about the average survival experience of cancer patients in a given population. They are less useful in predicting individual progress and should be applied with caution.
** The rate for localized stage for prostate cancer represents localized and regional stages combined.
Source: Surveillance, Epidemiology, and End Results (SEER) Program, Cancer Statistics Review 1975-2005, National Cancer Institute, Bethesda, MD, 2008.

The Impact of Gender, Age, and Race and Ethnicity

Cancer strikes men, women, and children of all ages and races. However, variations in leading cancer sites are seen among individuals because of gender, age, and racial and ethnic differences.

When comparing the overall cancer burden among men and women, men in Texas account for approximately 53% of all newly diagnosed cancers in Texas, and have an age-adjusted cancer mortality rate 1.4 times higher than the rate for women (Table 2). Prostate cancer is the most commonly diagnosed cancer among all men in Texas, followed by lung and bronchus, colorectal, and urinary bladder cancers (Figure 6). Breast cancer is the most commonly diagnosed cancer among all women in Texas, followed by lung and bronchus, and colorectal cancers (Figure 6). Cancer of the lung and bronchus is the leading cause of cancer deaths for both men and women in the state, all races combined (Figure 7). The second and third leading causes of cancer deaths among men of all races are colorectal and prostate cancers. For women of all races, the second leading cause of cancer deaths is breast cancer, followed by colorectal cancers.

Age is another factor affecting the number of cases and type of cancer seen. Cancer occurs more frequently with advancing age, and the risk of dying from cancer increases significantly. Nearly two thirds of the approximately 97,000 new cases of cancer diagnosed among Texans each year occur in residents aged 60 years and older. The impact of age varies with cancer sites. For example, almost 80% of prostate cancers occur at age 60 and above. On the other hand, 24% of cervical cancers are diagnosed in women age 60 and older (see cancer-site sections for information on diagnosis by age). Childhood (ages 0-14) and adolescent cancers (ages 15-19) are grouped according to a different classification scheme and are discussed in later sections.

A third factor in the amount and type of cancer seen is race and ethnicity. Incidence and mortality rates (the number per 100,000 population adjusted by age) vary widely due to this factor. Nationwide, black men have 1.8 - 2.4 times the mortality rates as white men for the following cancer sites (in descending order of magnitude): prostate, stomach, larynx, multiple myeloma, and oral cavity and pharynx.[2] Consistent with national patterns, blacks in Texas also bear a disproportionate amount of the overall cancer burden. Texas blacks have overall cancer mortality rates approximately 1.3 times higher than mortality rates for non-Hispanic whites, and approximately 1.8 times higher than mortality rates for Hispanics (Table 8). Overall, Texas Hispanics have lower cancer incidence and mortality rates than non-Hispanic whites and blacks in the state. However, exceptions are seen in some cancer sites. Incidence and mortality rates for stomach, liver, gallbladder, and cervical cancers are two-fold higher among Hispanics than among non-Hispanic whites. In addition, incidence and mortality rates for stomach and liver cancer are also two times higher in Asian/Pacific Islander men and women compared with non-Hispanic whites.

The five most frequently diagnosed cancers and leading cancer deaths also vary somewhat by race and ethnicity (Table 9). For example, there are differences among racial and ethnic groups in lung and bronchus cancer incidence. Lung and bronchus cancer is the second most commonly diagnosed cancer among non-Hispanic, black and Asian/Pacific Islander males and non-Hispanic white females; however, it is the third most commonly diagnosed cancer in Hispanic males and black, Hispanic, and Asian/Pacific Islander females. Cancer of the liver and intrahepatic bile duct is a leading cancer in Hispanic and Asian/Pacific Islander males but not for the other two male groups.

→

Table 8. Average Annual Cancer Incidence and Mortality Rates and Counts by Sex and Race and Ethnicity, All Sites Combined, Texas, 2001-2005

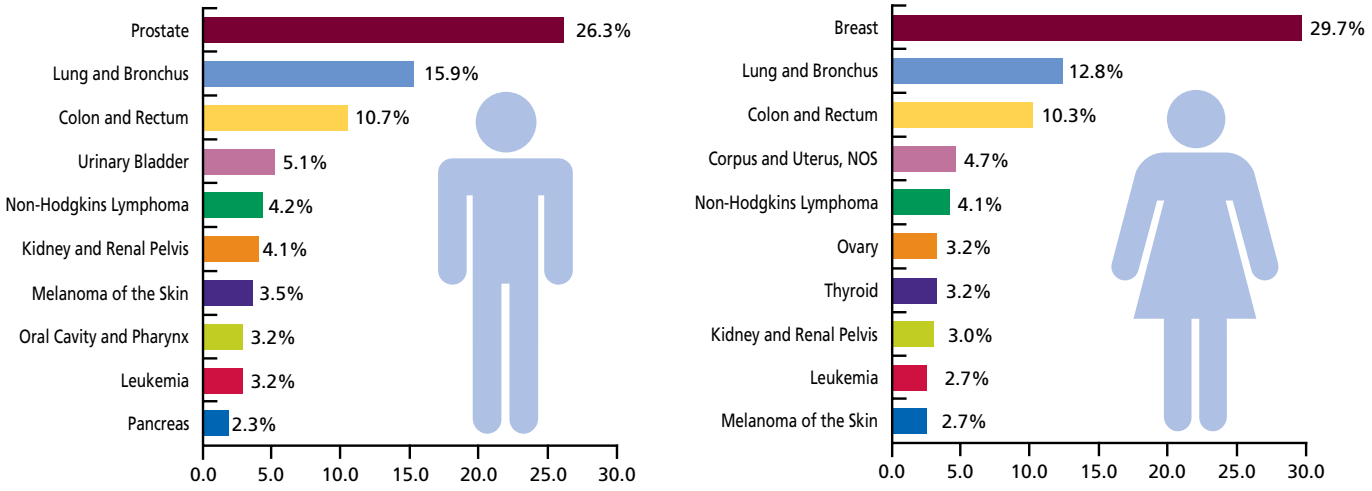
	INCIDENCE				MORTALITY			
	Male Incidence Rate	Male Average Annual Cases	Female Incidence Rate	Female Average Annual Cases	Male Mortality Rate	Male Average Annual Deaths	Female Mortality Rate	Female Average Annual Deaths
Non-Hispanic White	564.3	31,651	412.0	28,034	238.5	12,787	158.3	11,284
Black	651.7	4,819	400.8	4,257	330.8	2,211	197.7	1,996
Hispanic	417.5	7,332	315.0	7,351	176.6	2,742	114.9	2,386
Asian/Pacific Islander	254.1	484	204.7	552	120.4	203	85.7	196
All Races	542.0	45,114	389.2	40,777	231.8	17,983	152.2	15,892

Notes: Rates are average annual rates per 100,000 and age-adjusted to the 2000 U.S. standard population.
Average annual cases are rounded to the nearest whole.
All sites includes in-situ bladder, all other in-situ cases are excluded.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source:Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence,
Based on 2008 NPCR-CSS submission, 1-31-2008. Mortality data from Center for Health Statistics, Texas Department of State Health Services.

In terms of cancer deaths by race and ethnicity, lung and bronchus cancer is the leading cause of cancer deaths among Texas males and females of all races and ethnicities, with the exception of Hispanic females. Among Texas Hispanic women, breast cancer is the leading cause of cancer deaths. As with incidence, liver cancer is a leading cause of death among Hispanic and Asian/Pacific Islanders of both sexes but is not one of the leading causes in non-Hispanic whites or in black females.

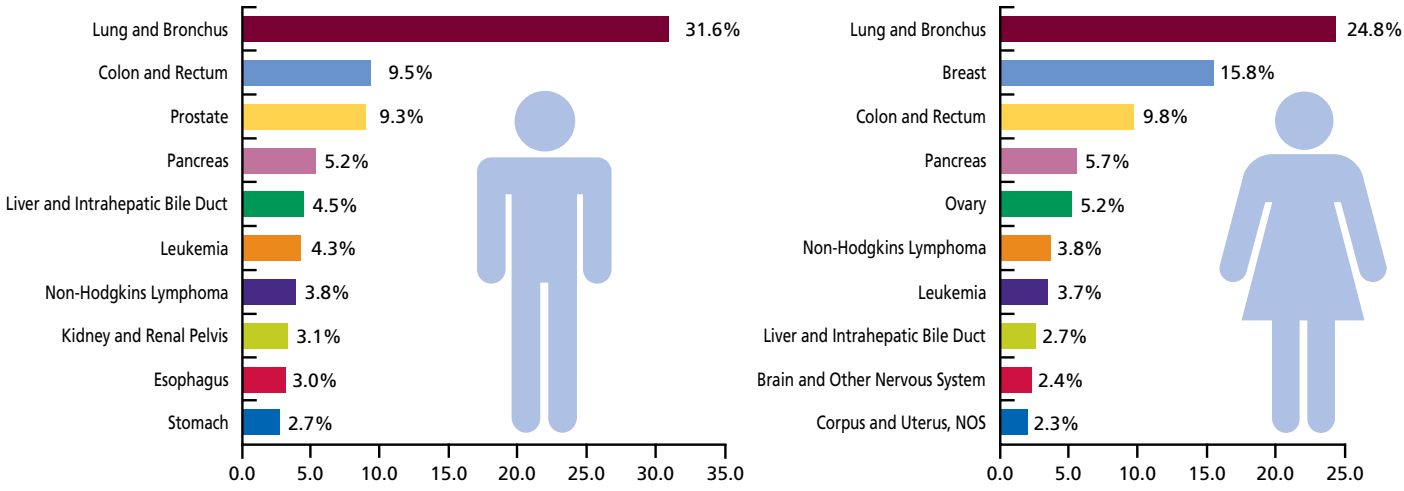
Differences in cancer incidence and mortality by gender, age, educational level, and race and ethnicity are all factors associated with cancer disparities.[5] Additional factors affecting cancer are provided in the following section.

Figure 6. Ten Leading Sites of Cancer Incidence, Texas, 2001-2005



Percentages are based on unrounded counts and totals.
Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR-CSS submission, 1-31-2008.

Figure 7. Ten Leading Sites of Cancer Mortality, Texas, 2001-2005



Notes: Percentages are based on unrounded counts and totals. NOS = Not otherwise specified.
Source: Texas Cancer Registry and Center for Health Statistics, Texas Department of State Health Services.

Table 9. Five Most Frequently Diagnosed Cancers and Five Leading Cancer Deaths by Sex and Race and Ethnicity, Texas, 2001-2005

MALE INCIDENCE

Non-Hispanic White

Site	Average Annual Cases	Percent of Total
Prostate	8,209	25.9
Lung and Bronchus	5,402	17.1
Colon and Rectum	3,270	10.3
Urinary Bladder	1,900	6.0
Melanoma of the Skin	1,420	4.5
All Sites	**31,651**	**100.0**

Black

Site	Average Annual Cases	Percent of Total
Prostate	1,516	31.4
Lung and Bronchus	888	18.4
Colon and Rectum	550	11.4
Kidney and Renal Pelvis	181	3.7
Non-Hodgkins Lymphoma	158	3.3
All Sites	**4,819**	**100.0**

Hispanic

Site	Average Annual Cases	Percent of Total
Prostate	1,704	23.2
Colon and Rectum	878	12.0
Lung and Bronchus	780	10.6
Kidney and Renal Pelvis	434	5.9
Liver & Intrahepatic Bile Duct	361	4.9
All Sites	**7,332**	**100.0**

Asian/Pacific Islander

Site	Average Annual Cases	Percent of Total
Prostate	97	20.0
Lung and Bronchus	74	15.2
Colon and Rectum	67	13.8
Liver and Intrahepatic Bile Duct	43	8.9
Stomach	23	4.8
All Sites	**484**	**100.0**

MALE MORTALITY

Non-Hispanic White

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	4,328	33.9
Colon and Rectum	1,158	9.1
Prostate	1,147	9.0
Pancreas	642	5.0
Leukemias	565	4.4
All Sites	**12,787**	**100.0**

Black

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	727	32.9
Prostate	286	12.9
Colon and Rectum	242	10.9
Pancreas	115	5.2
Liver & Intrahepatic Bile Duct	104	4.7
All Sites	**2,211**	**100.0**

Hispanic

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	570	20.8
Colon and Rectum	280	10.2
Liver & Intrahepatic Bile Duct	254	9.3
Prostate	237	8.6
Stomach	168	6.1
All Sites	**2,742**	**100.0**

Asian/Pacific Islander

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	52	25.8
Liver & Intrahepatic Bile Duct	35	17.3
Colon and Rectum	16	7.7
Stomach	15	7.3
Pancreas	12	6.1
All Sites	**203**	**100.0**

Notes: Average annual cases and deaths are rounded to the nearest whole. Percentages are based on unrounded counts and totals. NOS = Not otherwise specified.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source:Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence,
Based on 2008 NPCR-CSS submission, 1-31-2008. Mortality data from Center for Health Statistics, Texas Department of State Health Services.

Continued

Table 9 (continued). Five Most Frequently Diagnosed Cancers and Five Leading Cancer Deaths by Sex and Race and Ethnicity, Texas, 2001-2005

FEMALE INCIDENCE

Non-Hispanic White

Site	Average Annual Cases	Percent of Total
Breast	8,446	30.1
Lung and Bronchus	4,140	14.8
Colon and Rectum	2,863	10.2
Corpus and Uterus, NOS	1,271	4.5
Non-Hodgkins Lymphoma	1,180	4.2
All Sites	**28,034**	**100.0**

Black

Site	Average Annual Cases	Percent of Total
Breast	1,291	30.3
Colon and Rectum	556	13.1
Lung and Bronchus	535	12.6
Corpus and Uterus, NOS	188	4.4
Cervix	143	3.4
All Sites	**4,257**	**100.0**

Hispanic

Site	Average Annual Cases	Percent of Total
Breast	2,044	27.8
Colon and Rectum	672	9.1
Lung and Bronchus	471	6.4
Corpus and Uterus, NOS	423	5.8
Cervix	417	5.7
All Sites	**7,351**	**100.0**

Asian/Pacific Islander

Site	Average Annual Cases	Percent of Total
Breast	168	30.3
Colon and Rectum	60	10.9
Lung and Bronchus	57	10.2
Thyroid	36	6.6
Corpus and Uterus, NOS	27	4.9
All Sites	**552**	**100.0**

FEMALE MORTALITY

Non-Hispanic White

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	3,185	28.2
Breast	1,706	15.1
Colon and Rectum	1,077	9.5
Pancreas	612	5.4
Ovary	599	5.3
All Sites	**11,284**	**100.0**

Black

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	432	21.7
Breast	381	19.1
Colon and Rectum	236	11.8
Pancreas	122	6.1
Ovary	83	4.2
All Sites	**1,996**	**100.0**

Hispanic

Site	Average Annual Deaths	Percent of Total
Breast	389	16.3
Lung and Bronchus	282	11.8
Colon and Rectum	218	9.1
Pancreas	151	6.3
Liver & Intrahepatic Bile Duct	137	5.8
All Sites	**2,386**	**100.0**

Asian/Pacific Islander

Site	Average Annual Deaths	Percent of Total
Lung and Bronchus	40	20.3
Breast	25	12.6
Colon and Rectum	20	10.4
Liver & Intrahepatic Bile Duct	16	8.0
Ovary	12	6.1
All Sites	**196**	**100.0**

Notes: Average annual cases and deaths are rounded to the nearest whole. Percentages are based on unrounded counts and totals. NOS = Not otherwise specified.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source:Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence,
Based on 2008 NPCR-CSS submission, 1-31-2008. Mortality data from Center for Health Statistics, Texas Department of State Health Services.

Cancer Disparities: Meeting the Needs of Texas' Diverse Population

Texas is a large and diverse state, both in its geography and demographics. According to 2007 population estimates from the US Census Bureau, there are nearly 24 million Texans, with approximately 48% non-Hispanic white, 11% black, 36% Hispanic, 3% Asian/Pacific Islander, and 2% Native American or other races combined (Figure 8). Population demographics vary throughout the state.

According to projections of the Texas State Data Center, the state's population will continue to grow rapidly. By 2010, Texas is likely to have 25 million people and by 2040, Texas could have nearly 35.8 million people, a 72% increase.[6] Dramatic changes also are expected in the racial and ethnic and age compositions of the state's population. By 2020, it is estimated that Hispanics will outnumber all other racial and ethnic groups in Texas and will become the majority population by 2035. The state will maintain a significant number of younger individuals, primarily of Hispanic and non-white race and ethnicity, while markedly increasing its aging population in the coming decades. Currently, 27% of Texans are under 18 years of age (Figure 9). By 2040, the number of Texans under the age of 18 is expected to increase by 88% percent. However, the number of Texans over the age of 65 is expected to increase by almost 300%. The aging of the overall population is consistent with nationwide trends. Because cancer is a disease primarily of older individuals, this state and nationwide trend has implications for the burden of cancer in Texas.

It is important to be aware of the population distribution and demographic make-up of different areas of the state, as the cancer burden will vary based on county size and demographics. County-specific cancer incidence and mortality data and maps by racial and ethnic group for specific cancer types are readily available via the new Texas Cancer Data Query System located at *http://www.cancer-rates.info/tx* or from Texas Cancer Information at *www.texascancer.info*.

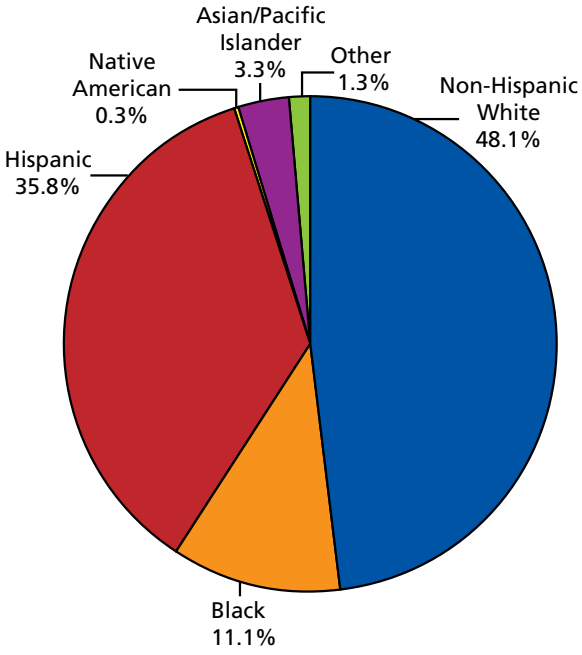
Figure 10 compares urban and rural county cancer incidence rates by race and ethnicity. Overall, the rates for all cancer sites combined were similar among urban and rural residents of each racial and ethnic group with the exception of rural Asian/Pacific Islanders who had a slightly higher incidence than urban residents.

Cancer Disparities

Disparities occur when members of certain population groups do not enjoy the same health status as other groups.[7] Age, sex, and race and ethnicity, as discussed in the previous section, are demographic characteristics associated with such disparities.

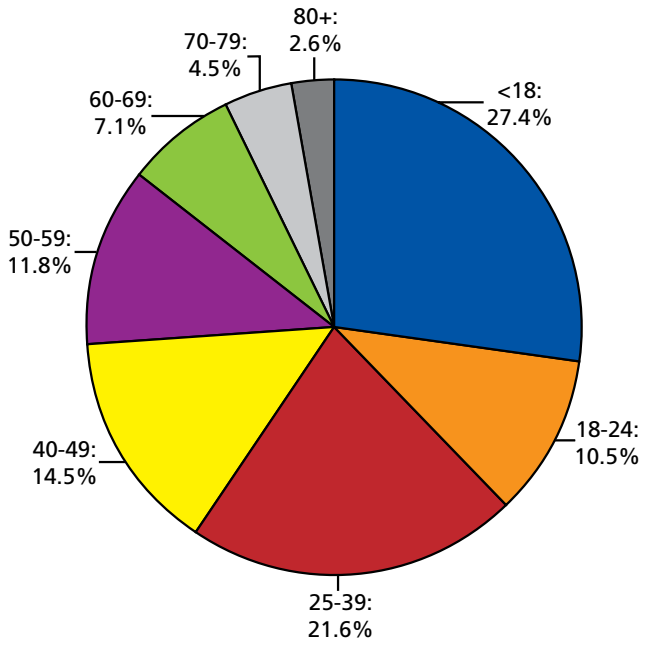
→

Figure 8. Population by Race and Ethnicity, Texas, 2007



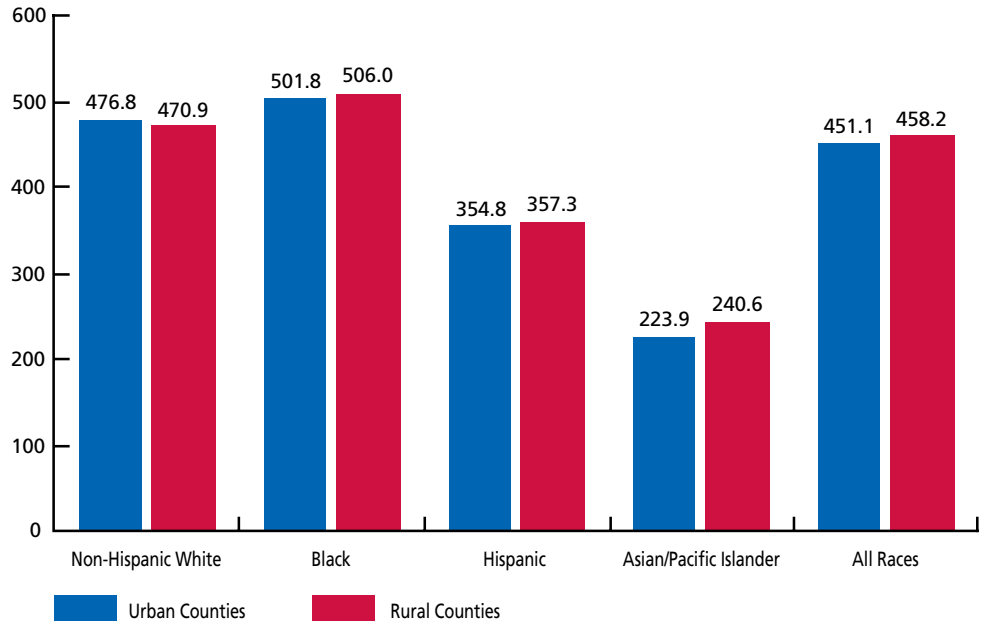
Notes: Population percentages may vary from other reports. Does not total to 100% due to rounding.
Source: 2007 Population estimates projected from 2000 Census data; licensed by Thomson Medstat Copyright @ 2007, Claritas Inc., Copyright @ 2007 Thomson Healthcare. ALL RIGHTS RESERVED

Figure 9. Population by Age, Texas, 2007



Source: 2007 Population estimates projected from 2000 Census data; licensed by Thomson Medstat
Copyright @ 2007, Claritas Inc., Copyright @ 2007 Thomson Healthcare. ALL RIGHTS RESERVED

Figure 10. Average Annual Incidence Rates, All Sites, by Race and Ethnicity for Urban and Rural Counties, Texas, 2001-2005



Rates are average annual rates per 100,000, age-adjusted to the 2000 U.S. standard population. All Sites includes all malignant cancers plus in situ bladder cancer. All other in situ cases are excluded. Urban/rural designations by the U.S. Office of Management and Budget, 2003.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008.

Urban or Metro Counties*

Aransas	Caldwell	Denton	Hidalgo	Midland	Tarrant
Archer	Calhoun	Ector	Hunt	Montgomery	Taylor
Armstrong	Callahan	El Paso	Irion	Nueces	Tom Green
Atascosa	Cameron	Ellis	Jefferson	Orange	Travis
Austin	Carson	Fort Bend	Johnson	Parker	Upshur
Bandera	Chambers	Galveston	Jones	Potter	Victoria
Bastrop	Clay	Goliad	Kaufman	Randall	Waller
Bell	Collin	Grayson	Kendall	Robertson	Webb
Bexar	Comal	Gregg	Lampasas	Rockwall	Wichita
Bowie	Coryell	Guadalupe	Liberty	Rusk	Williamson
Brazoria	Crosby	Hardin	Lubbock	San Jacinto	Wilson
Brazos	Dallas	Harris	McLennan	San Patricio	Wise
Burleson	Delta	Hays	Medina	Smith	

Urban or metro counties (Beale 1-3) designations by the US Office of Management and Budget, 2003.
*Rural county designations would be all other counties not listed here. Texas has 77 counties designated as urban or metro and 177 counties designated as rural.

The Economic Cost of Cancer in Texas

Cancer is the most costly illness in the United States. The National Institutes of Health estimate that, nationwide, the cost for cancer in 2007 was close to $219 billion. Costs include both direct medical costs and indirect costs from lost productivity. In Texas alone, costs in 1998 were estimated to be $14 billion. Four leading cancer sites accounted for more than $5 billion of the total cost. A breakdown of the approximate costs by major cancer site is:

Lung and Bronchus Cancer	$2.2 billion
Colon and Rectum Cancer	$1.2 billion
Breast Cancer	$1.2 billion
Prostate Cancer	$445 million

The costs today are much higher and a study is underway to update these figures to better reflect the true current costs. These updated Texas cost estimates will be available in early 2009.

Sources: *Cancer Facts and Figures 2008*, American Cancer Society, Inc. Atlanta, GA,
The Cost of Cancer in Texas, Texas Department of State Health Services, Comprehensive Cancer Control Program, *www.dshs.state.tx.us/tcccp/*.

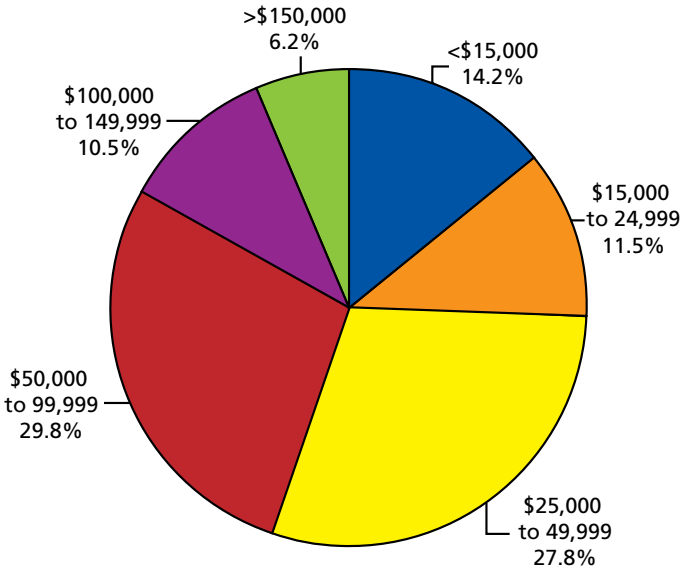
Additional population groups that experience disparities may be defined by income, geography (urban/rural), education/literacy level, and other factors. Disparities may be disease specific or may be differences in disease risk factors (i.e. cigarette smoking, being overweight, physical inactivity). Whenever a population group has a worse cancer experience or poorer health status than the population as a whole, disparities exist. Unfortunately, serious disparities exist in the United States and Texas.

Poverty is the most critical factor affecting health. It is estimated that, statewide, over one fourth of Texas households have an annual income less than $25,000 (Figure 11). According to the US Census Bureau, Current Population Survey (CPS), approximately 3.8 million Texans lived below the poverty line in 2006 (defined as having a yearly income of $20,614 for a family of four).[8] This translates to an overall state poverty rate of 16.4%. Hispanics represent a disproportionate number of Texans living in poverty. Hispanics make up 56% of the 3.8 million Texans living in poverty, followed by non-Hispanic whites (24%), blacks (17%) and other racial and ethnic groups (3%).[8] High poverty levels are associated with a lower proportion of cancers diagnosed at early-stage disease, when prognosis for survival is most favorable.

Access to appropriate early detection and treatment may also be limited because of lack of health insurance coverage and those without insurance have worse outcomes.[9] A study by the Robert Wood Johnson Foundation found that individuals without medical coverage are less likely to get preventive care such as mammograms.[10] This same study revealed that Texas leads the nation in the percentage of working people who have no health insurance. Certain racial and ethnic groups are at greater risk for lacking coverage. Texas Hispanics, blacks, and other racial groups, compared with non-Hispanic whites, are less likely to have health insurance (Table 10). The problem is especially acute among Hispanics (44% report not having health insurance). Most Texans with less than a high school diploma and those with low income also report having no health insurance (51% and 48%, respectively). Texans have less health insurance than comparable groups in the United States.

Access to appropriate early-detection screening and treatment may also be limited because of transportation difficulties and/or inadequate numbers of facilities and providers in certain areas of the state. Many of the 3 million Texans who live in one of the state's 177 rural counties may be considered medically underserved, a federal designation used to identify an area with inadequate access to personal health services (Figure 12). In such areas there is often an older population with a higher than average need combined with a lower-than-average provider base. In addition, more than half of Texas' 254 counties are designated primary care Health Professional Shortage Areas, which are areas with less than one primary care physician per 3,500 people (Figure 13). Shortage of health professionals, primary care professionals in particular, is correlated with lower use of screening and prevention methods. Most counties in western and southern areas of the state do not have an American College of Surgeons (ACoS)-approved or other hospital-based cancer program or freestanding cancer centers (Figure 14). The number of counties with physicians who specialize in oncology is even further limited. As of May 2008, nearly three quarters of the physicians who reported specialties in oncology to Texas Cancer Information were located in five urban counties: Harris, →

Figure 11. Population by Income, Texas, 2007



Source: 2007 Population estimates projected from 2000 Census data; licensed by Thomson Medstat

Table 10. Prevalence of Adults (Ages 18 to 64 Years) Without Health Insurance, Texas and United States, 2007

	Texas Percent	U.S. Percent
Total	**25.7**	**18.0**
Sex		
Male	25.6	19.5
Female	25.8	16.6
Race and Ethnicity		
Non-Hispanic White	14.3	12.7
Black	29.1	23.7
Hispanic	44.2	36.2
Other	20.0	18.3
Low Education*	51.2	43.3
Low Income**	48.4	40.6

* Adults 18 to 64 years of age with less than a high school diploma.
**Adults 18 to 64 years of age that have a total household income of less than $25,000.
Note: All reported rates are weighted for Texas demographics and the probability of selection.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2007.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

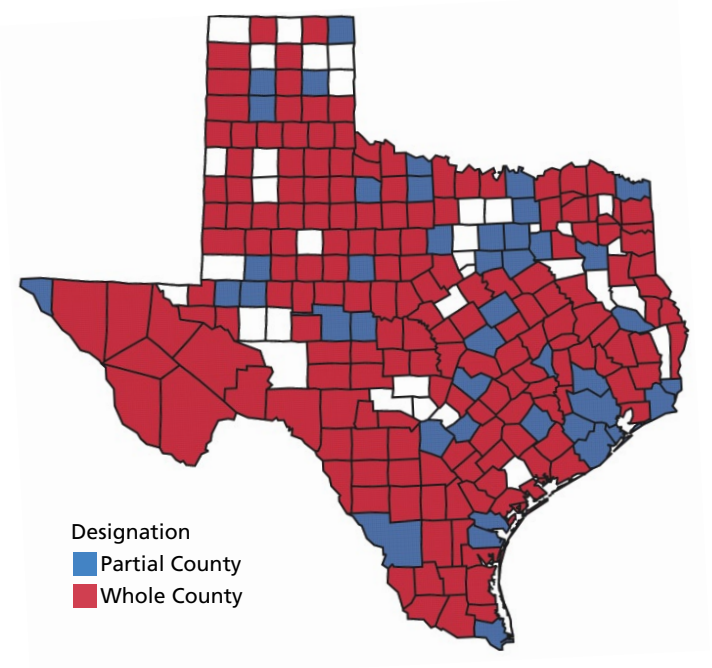
Dallas, Bexar, Tarrant and Travis. Although there are now three NCI-designated cancer centers in Texas, these too are located in urban counties (Harris and Bexar).

Portions of the above are excerpted from Cancer Facts & Figures 2004, American Cancer Society, Inc., Atlanta, GA. Full text is available on the American Cancer Society Web site www.cancer.org. *Additional information on racial and ethnic disparities in health care can be found in publications of the Intercultural Cancer Council,* www.iccnetwork.org/cancerfacts.

American College of Surgeons Approved Programs

The Approvals Program of the Commission on Cancer (CoC), a multidisciplinary program of the American College of Surgeons (ACoS), encourages hospitals, treatment centers, and other facilities to improve their quality of patient care through various cancer-related programs. These programs are concerned with prevention, early diagnosis, pre-treatment evaluation, staging, optimal treatment and rehabilitation, surveillance for recurrent disease, support services, and end-of-life care. In Texas, over 70 CoC approved programs provide care for approximately 80 percent of all newly diagnosed cancer patients.

Figure 12. Federally Designated Medically Underserved Areas



Prepared by: Texas Cancer Data Center.
Source: Texas Department of State Health Services, Center for Health Statistics, Health Professions Resource Center, Designations as of April 1, 2008.

NCI-Designated Cancer Centers

NCI-designated Cancer Centers are recognized for their scientific excellence and extensive resources focused on cancer and cancer-related problems. The Cancer Centers are a major source of discovery of the nature of cancer and of the development of more effective approaches to cancer prevention, diagnosis, and therapy. They also deliver medical advances to patients and their families, educate health-care professionals and the public, and reach out to underserved populations.

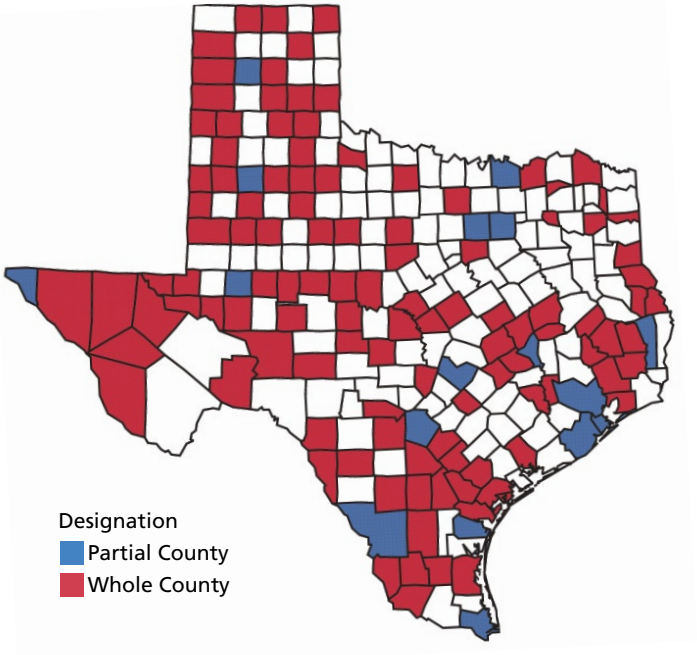
The NCI recognizes two types of centers: Cancer Centers and Comprehensive Cancer Centers, based on the type of grant received. An NCI Comprehensive Cancer Center requires state-of-the-art care and services and includes a strong research base interactive with a wide spectrum of prevention, care, education, information and dissemination activities that broadly serve communities, regions of the country and often the Nation. In terms of patient care, there is no difference in the quality of care each type of center provides. A full range of diagnostic and treatment services and staff physicians with major specialty board certification, including certification in oncology, is available. The Centers also participate in both basic and clinical research. The three NCI-designated Centers in Texas are:

Cancer Therapy & Research Center at The University of Texas Health Science Center at San Antonio

Dan L. Duncan Cancer Center at Baylor College of Medicine - Houston

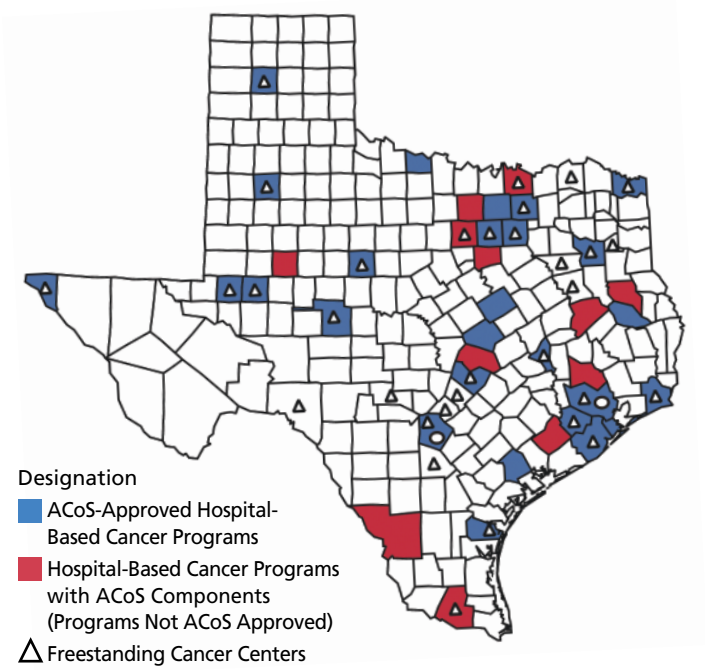
The University of Texas M. D. Anderson Cancer Center- Houston (Comprehensive Cancer Center)

Figure 13. Federally Designated Primary Medical Care Health Professional Shortage Areas



Prepared by: Texas Cancer Data Center.
Source: Texas Department of State Health Services, Center for Health Statistics, Health Professions Resource Center, Designations as of April 1, 2008.

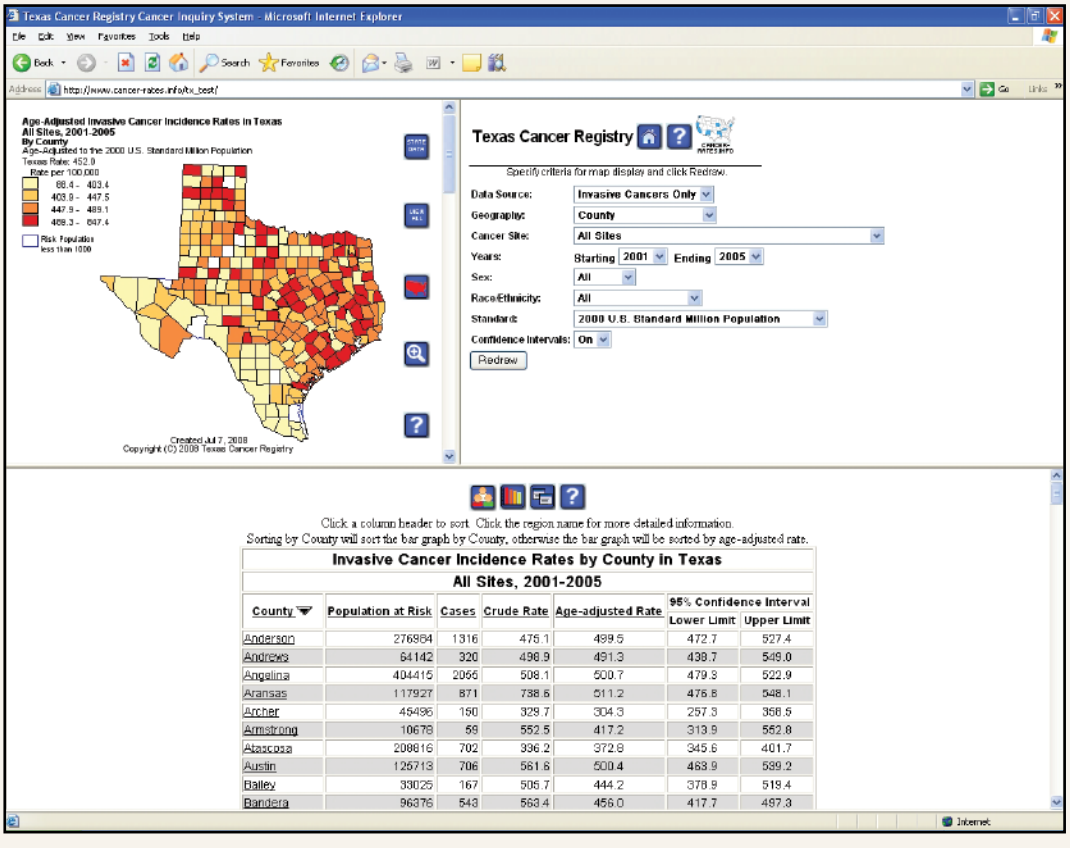
Figure 14. Texas Counties with Hospital-Based Cancer Programs, Freestanding Cancer Centers and/or NCI-Designated Cancer Centers



Source: Texas Cancer Information, May 2008
Counties with shading or symbols have at least one of the specified hospitals or cancer centers. For example, there are two NCI-designated cancer centers in Harris County.

Texas Cancer Data Query System

Shown right is an example of the type of cancer data and mapping available from this query tool.



County	Population at Risk	Cases	Crude Rate	Age-adjusted Rate	95% Confidence Interval	
					Lower Limit	Upper Limit
Anderson	276984	1316	475.1	489.5	472.7	527.4
Andrews	64142	320	498.9	491.3	438.7	549.0
Angelina	404415	2066	508.1	500.7	479.3	522.9
Aransas	117927	871	738.6	511.2	476.6	548.1
Archer	45486	150	329.7	304.3	257.3	356.5
Armstrong	10678	59	552.5	417.2	313.9	562.8
Atascosa	208816	702	336.2	372.8	345.6	401.7
Austin	125713	706	561.6	500.4	463.9	539.2
Bailey	33025	167	505.7	444.2	378.9	519.4
Bandera	96376	543	563.4	456.0	417.7	497.3

Quality of Life: Issues Affecting Individuals Touched by Cancer

The diagnosis of cancer affects many aspects of a person's existence and sense of self. Quality of life refers to a person's overall sense of well-being. For persons living with cancer, quality of life can be affected by pain, fatigue, or treatment-related side-effects. Also, limitations on functional status can affect the ability to carry out daily activities or the ability to work. Poor quality of life can affect a person's mental health and relationships with family and friends.

The Institute of Medicine (IOM) recently released two reports with important implications for quality of life of cancer patients and survivors. One, *From Cancer Patient to Survivor: Lost in Transition*, highlights the growing number of persons now living far beyond treatment for their cancer and the particular needs of cancer survivors for research and interventions that can improve symptom management and other aspects of quality of life.[11] In a second report, *Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs*, the IOM points out the impact of cancer on the psychological and social dimensions of life and the paucity of resources available to many patients and survivors to address that impact.[12]

Approximately 97,000 Texans will be diagnosed with cancer in 2008 (Table 1). From the time of diagnosis until the end of life, the quality of life for every cancer survivor is affected in some way. Long-term survivorship is a realistic expectation for roughly two thirds of those diagnosed with cancer today. While some are "disease free," others continue to struggle with chronic, active disease; and many are affected by long-term and late side-effects.

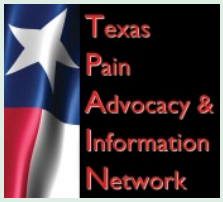
Every cancer diagnosis affects more than one person, and the number of people directly affected by someone else's cancer (family, friends, etc.) is an emerging concern. As cancer treatments improve and the number of cancer survivors grows, it will be increasingly important to provide effective support to them and their families, friends and caregivers – to increase not just the quantity but also the quality of their lives.

Physical and psychological symptoms related to cancer and cancer treatments have a great impact on quality of life. Managing pain is an ongoing struggle for many patients and survivors and may lead to disruptions in sleep. Fatigue is a prevalent side-effect that disrupts multiple aspects of daily life, impairs the overall sense of well-being and contributes to anxiety and depression. Changes in appearance may result in low self-esteem, so that survivors view themselves as damaged and unattractive. This also can lead to isolation at a time when love, friendship, and support are critically important.

Long-term and late effects of treatment aside from initial acute problems include urinary and fecal incontinence, sexual dysfunction, dental problems, lymphedema, loss of appetite, and difficulty participating in normal activities such as going to the office or managing a household. The disease process and its treatment can lead to severe protein-calorie malnutrition, the single most common secondary diagnosis in the cancer patient. It has been estimated that up to 20% of people with cancer may die of the effects of cancer including treatment-related malnutrition.

Lack of or insufficient access to medical care and treatment, community programs and social services, employment and insurance, and social opportunity can be barriers to the cancer survivor and family achieving full quality of life. The link between poor access to care and poor health outcomes is well established. One fourth of Texans lack health insurance, surpassing the national average of 18% in 2007 (Table 10).

The cost of cancer treatment, loss of earning power, and physical or emotional disability can result in economic stress. The impact of treatment-associated medical expenses is especially acute in low-to-middle income families who may find that they are no longer able to meet basic living expenses. Some survivors are denied health or life insurance because of a history of cancer. Others are asked to waive coverage of cancer to get health insurance.



"Pain is the most common reason Texans access our health care system…about 11 million Texans may live in unrelenting pain." *~Larry C. Driver, MD, Chair, TxPAIN*

The Texas Pain Advocacy & Information Network (TxPAIN) is a statewide collaboration including American Cancer Society High Plains Division, Lance Armstrong Foundation, Texas Medical Association, Texas Pain Society, Texas Partnership for End-of-Life Care and many others. TxPAIN exists so that people have access to appropriate pain management through awareness, education, and policy and practice change.

A published report, *The Politics of Pain: Balancing Vigilance and Compassion – Report of the Texas Pain Summit 2006-2007*, contains key information and data including summary survey results of Texas households and health-care practitioners, supporting science and research, policy perspectives, action plan goals and strategies. This resource serves as the 5-year strategic plan for addressing the improvement of pain care for Texans and is available at *http://www.aspi.wisc.edu/acstxpil*.

Many survivors fear discrimination in the workplace as a result of their cancer. Some survivors report problems with employers or supervisors such as discrimination in promotions and salary increases or experience involuntary separation.

People confronted with cancer diagnosis and treatment often feel a loss of control over their lives, as if the disease itself has assumed control, and may not fully comprehend their rights to understand, consent to, and participate in treatment decisions. Cancer survivors suffer from anxiety and clinical depression at a much higher rate than the general population. These are serious conditions that require treatment.

Cancer is a family disease on many levels. Family members may need psychosocial support as they deal with changing roles. Children, who often feel they are somehow responsible for their loved one's illness, need special help. Compassion fatigue, i.e., caregiver burnout, may be a contributing factor to a number of issues, including high divorce rates, suicide, drug and alcohol abuse, caffeine and nicotine addictions, and short life expectancy. Of particular concern is the survivor who does not have a support system. The reciprocal relationship between quality of life of survivors and that of family and caregivers is well documented. When family distress from cancer is reduced, quality of life is increased. Despite this, insufficient attention has been given to addressing family and caregiver quality of life and to creating supportive programs and services.

Cancer is a life-altering experience that can influence perceptions of life and its transience. Thoughts of death and concepts of afterlife gain new meaning and importance. Many survivors speak of deriving special meaning from having cancer, a heightened sense of vulnerability once given the diagnosis, a greater valuation of personal relationships in life itself, and gaining new inner strength.

Cancer survivors often struggle to find meaning in what has happened to them and to regain a sense of hopefulness and purpose in life. Some call upon their connection with a church or religious community, while others derive hope from their own personal spirituality. When spiritual issues are resolved, survivors and their families report improved quality of life. Cancer survivors and families must be enabled to articulate where they are in the healing process. This is critical to the survivor's coping and growth and to the health-care provider's understanding of the spiritual issues and healing process.

Transition from active treatment to survivorship and perhaps later to palliative care often requires supportive interventions. Because health and social systems are complex and fragmented, cancer survivors and families need assistance in accessing services and resources. Needs are often greatest at "crisis points." Common issues include finances, insurance, transportation, housing, medication, and emotional distress.

If the end of life becomes inevitable, both the person with cancer and family members need support and assistance in dealing with special end-of-life issues. Death is a natural process of life that should be associated with dignity and meaning. Understanding the necessity of going through the grief process, which may include denial, anger, and depression, can help. Both the dying person and his/her family should be provided with the support they need to adjust to their new reality. Being encouraged to share remembered experiences with one another could be a means of healing and preparation for death. While the tendency is to want to numb all senses at this time, acceptance and healing are better served by trying to understand and work through the emotions that accompany end of life and the bereavement issues that follow.

Texas Partnership for End-of-Life Care

The Texas Partnership for End-of-Life Care seeks to improve treatment and care at life's end for persons across all communities and cultures in Texas. Core values of community, compassion, credibility and collaboration reflect the essence that drives the organization. It is a statewide collaboration of organizations, healthcare professionals, and consumers who are passionate about improving how Texas families and friends receive care as they approach end of life. The Partnership promotes evidence-based treatment of the physical, emotional, social, and spiritual suffering associated with advanced life-limiting illness and provides programs that inform and educate about advance care planning, palliative and supportive care and pain and symptom management.

Breast Cancer

Female Breast Cancer, Texas, 2001-2005

	Avg. Count/Yr.	Avg. Rate/Yr.
Incidence	12,119	115.5
Mortality	2,505	23.8

Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Approximately 12,100 new cases of invasive breast cancer are diagnosed in Texas women each year. Another 2,500 deaths are caused by the disease. This does not include in situ breast cancers that have not invaded or penetrated surrounding tissues. Breast cancer is the most common cancer among women in Texas, regardless of race and ethnicity. Among Texas women, it accounts for 30% of all cancer cases, but only 16% of the cancer deaths. Most breast cancer incidence in women (75%) occurs in women age 50 and older (Table 11). Men are not immune to breast cancer, although it is rare. Approximately 20 Texas men die from cancer of the breast each year, with 130 cases newly diagnosed.

Texas exhibits a common pattern in which non-Hispanic white women are diagnosed with breast cancer at higher rates than other racial and ethnic groups, but black women die at higher rates — nearly 1.5 times that of Hispanic women with breast cancer (Figure 15). This means, although black women are less likely to develop breast cancer than non-Hispanic white women, they are more likely to die from the disease. This finding may suggest major differences in early diagnosis, treatment, and other risk factors influencing this disease.

The risk of breast cancer is higher in women who have a personal or family history of breast cancer, biopsy-confirmed atypical hyperplasia, increased breast density, a long menstrual history, obesity after menopause, recent use of oral contraceptives or post-menopausal estrogen and progestin, or no children or a first child after age 30, or in women who consume one or more alcoholic beverages per day. Incidence rates appear to correlate with variations in diet, especially fat intake, while vigorous physical activity and maintenance of a healthy body weight are associated with lower risk. Between 1996 and 2005, the age-adjusted mortality rate for breast cancer in women, all races combined, has declined almost 2% annually (Figure 4) and the incidence also has declined 1% annually (Figure 5), a significant change.

Breast Cancer Early Detection And Screening

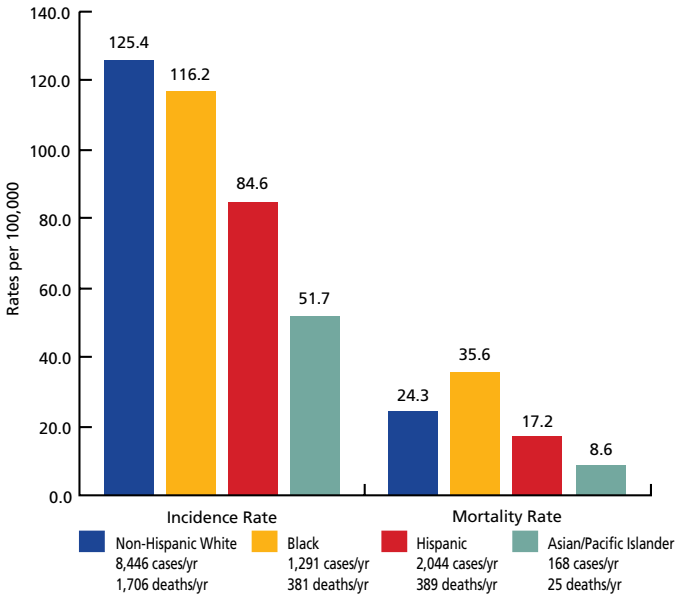
The overall 5-year relative survival for women with breast cancer is 89% (Table 6) and, with a diagnosis of breast cancer at its earliest stage, survival is excellent. When it is detected at a localized stage (usually by mammography), the 5-year relative survival is 98%. Survival falls to 84% when the cancer is detected

Table 11. Female Breast Cancer Incidence Rates, Counts, and Percentage of Total New Cancers by Age of Diagnosis, Texas, 2001-2005

	Age Specific Rates	Total Cases	Average Annual Cases	% of Newly Diagnosed Breast Cancer Cases
0-29	1.6	383	77	0.6
30-39	40.9	3,344	669	5.5
40-49	138.7	11,362	2,272	18.8
50-59	242.5	14,880	2,976	24.6
60-69	346.5	13,093	2,619	21.6
70-79	392.7	10,915	2,183	18.0
80+	354.6	6,617	1,323	10.9
Total			**12,119**	**100.0**

Note: Incidence counts are five-year average annual, rounded to the nearest whole.
Rates are age-specific annual rates per 100,000.
Incidence includes invasive cancers only.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 15. Female Breast Cancer Incidence and Mortality Counts and Rates by Race and Ethnicity, Texas, 2001-2005

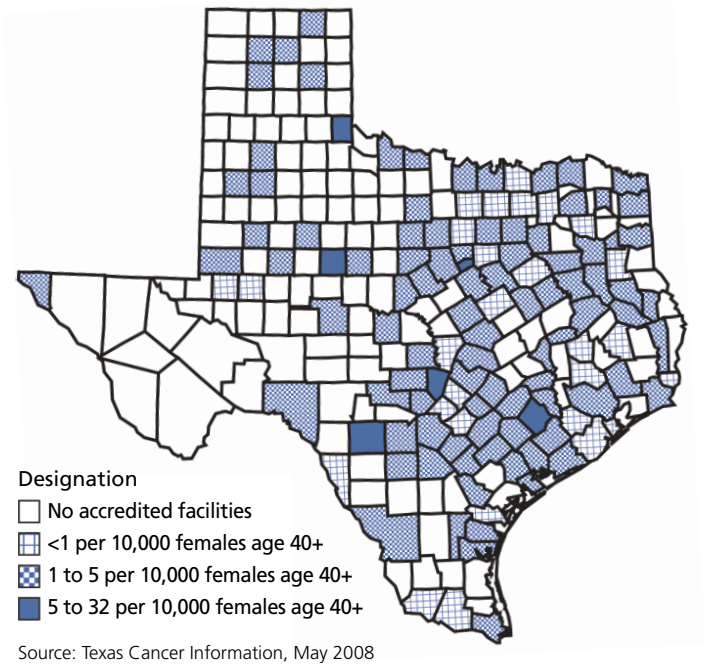


Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population. Cases and deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

at a regional stage and 27% if detected at a distant stage (see page 9 definitions and SEER stage chart). Approximately six of every ten cases of breast cancer in Texas women are detected at an early stage (in situ and localized). Stage at diagnosis varies among different racial and ethnic groups in Texas, with non-Hispanic whites and Asian/Pacific Islanders more likely to be diagnosed when the disease is at its earliest stage, compared with black and Hispanic women (Table 12).

A breast health program of annual mammograms starting at age 40 and clinical breast examinations as part of a periodic health exam are the most important actions a woman can take to detect breast cancer at its earliest stage. Women at increased risk (e.g. family history, genetic tendency, past breast cancer) should speak with their doctors about benefits and limitations of more frequent and/or additional tests. In 2006, 71% of Texas women age 40 and older reported having had a mammogram in the past 2 years. As in other areas of the nation, differences in screening behaviors in Texas are seen among women of different age, race and ethnicity, and educational attainment. Hispanic women and women with less than a high school education and low income report the lowest screening prevalence (Table 13). Screening rates are also influenced by the availability of mammography facilities. As of May 2008, one-half of Texas counties (128) did not have accredited permanent mammography facilities and the number of facilities available per women 40 years and older varied across the state (Figure 16).

Figure 16. On-Site Mammography Programs Accredited by the American College of Radiology and/or the State of Texas per 10,000 Females Age 40+



Source: Texas Cancer Information, May 2008
2006 population estimates from Texas Department of State Health Services Center for Health Statistics.

Table 12. Female Breast Cancer Cases and Percent of Total by Race and Ethnicity and Stage at Diagnosis, Texas, 2001-2005

Breast (Female)	Total Cases	Percent Early Stage	Percent Late Stage	Percent Unknown
Non-Hispanic White	51,040	65.3	28.1	6.5
Black	7,770	54.6	36.5	8.9
Hispanic	11,926	55.9	36.5	7.6
Asian/Pacific Islander	1,093	66.4	26.9	6.7

Note: Early = in situ + localized. Late = regional + distant. Number of cases is a five-year total. Percentages are based on unrounded counts and totals.
Cases of unknown race are not included.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence,
Based on 2008 NPCR-CSS Submission, 1-31-2008.

Table 13. Prevalence of Women (Ages 40 Years and Older) Who Have Had a Mammogram in the Past 2 Years, Texas and United States, 2006

	Texas Percent	U.S. Percent
Total	**71.0**	**76.6**
Age Groups (Years)		
40 to 64	68.6	75.5
65+	77.2	79.0
Race and Ethnicity		
Non-Hispanic White	72.8	76.9
Black	78.4	77.9
Hispanic	61.6	74.6
Other	69.8	72.6
Low Education*	59.1	67.7
Low Income**	62.1	68.8

* Adults 40 years of age and older with less than a high school diploma.
**Adults 40 years of age and older that have a total household income of less than $25,000.
Note: All reported rates are weighted for Texas demographics and the probability of selection.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2006.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

Cervical Cancer

Invasive Cervical Cancer, Texas, 2001-2005

	Avg. Count/Yr.	Avg. Rate/Yr.
Incidence	1,083	10.1
Mortality	342	3.2

Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR submission , 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Approximately 1,100 women in Texas are diagnosed with invasive cervical cancer each year. Another 350 die from the disease. As cervical cancer screening has become more prevalent, pre-invasive lesions of the cervix are detected far more frequently than invasive cancer. Invasive cervical cancer represents approximately 3% of all cancer incidence in Texas women and 2% of all cancer mortality. More than half of all new cases of invasive cervical cancer are diagnosed in women below the age of 50 (Table 14). For mortality, however, this is reversed. Approximately three of every five cervical cancer deaths occur among women age 50 and older. This is due in part to the fact that cervical cancer in older women is much more likely to be diagnosed at a later stage.

When one considers all Texas racial and ethnic groups combined, cervical cancer is not one of the 10 leading cancers diagnosed in women. However, among Hispanic and black women statewide, cervical cancer is the fifth most common cancer site. In addition, Hispanic females living along the Texas-Mexico border have higher cervical cancer incidence rates than Hispanics living in non-border counties.[13]

Hispanic women living along the Texas-Mexico border also have higher cervical cancer mortality rates compared to Hispanic women living in non-border counties.[13] However, black women have the highest cervical cancer mortality rates among all race and ethnic groups. In Texas, black women have 1.3 times the mortality rate of Hispanic women, and 2.2 times the cervical cancer mortality rate of non-Hispanic white women in the state (Figure 17). As with disparities in breast cancer mortality, this finding may suggest major differences in early detection, treatment, and other risk factors influencing this disease.

Between 1996 and 2005, the age-adjusted incidence rate for cervical cancer for all races combined has declined almost 3% annually, a significant decline (Figure 5). The cervical cancer mortality rate also declined 1.6% annually (Figure 4).

Cervical Cancer Prevention, Early Detection, And Screening

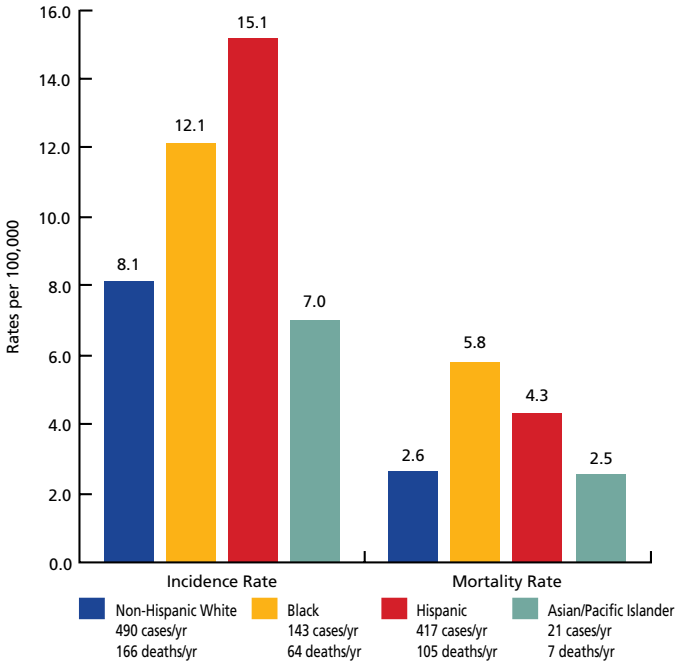
Of all cancers, cervical cancer is among the most amenable to prevention and early detection through screening. Most cervical cancer is caused by infection with the human papilloma virus (HPV). Cervical cancers can be prevented in two ways. The first way is to prevent pre-cancers. In many cases this can be done by avoiding multiple sexual partners, by young women delaying their first sexual experience, and by not smoking. In addition, using a condom during sexual intercourse or being immunized with a new cervical cancer vaccine may provide some protection from HPV infection.

Table 14. Cervical Cancer Incidence Rates, Counts, and Percentage of Total New Cancers by Age of Diagnosis, Texas, 2001-2005

	Age Specific Rates	Total Cases	Average Annual Cases	% of Newly Diagnosed Cervical Cancer Cases
0-29	1.5	369	74	6.8
30-39	15.2	1,246	249	23.0
40-49	18.8	1,544	309	28.5
50-59	15.6	957	191	17.7
60-69	14.8	560	112	10.3
70-79	16.8	467	93	8.6
80+	14.6	272	54	5.0
Total			**1,083**	**100.0**

Note: Incidence counts are five-year average annual, rounded to the nearest whole.
Rates are age-specific annual rates per 100,000.
Incidence includes invasive cancers only.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 17. Cervical Cancer Incidence and Mortality Counts and Rates by Race and Ethnicity, Texas, 2001-2005



Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Cases and deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

The second way to prevent cervical cancer is to have regular Pap tests, which can detect pre-cancers and infection by HPV (see screening guidelines on page 43). Treating these problems can stop cervical cancer before it fully develops.

The 5-year relative survival rate for cervical cancers diagnosed early is 92 percent and then rates drop sharply —to less than 20%— if the cancer has distant spread by the time it is detected (Table 6). Hispanic and black women are more likely to be diagnosed at a later stage of invasive of cervical cancer (Table 15). Over the past 25 years, the high prevalence of Pap screening has led to a significant reduction in the incidence of invasive cervical cancer. Texas women overall had a lower prevalence of Pap screening than US women and the difference was most evident among women of other races (includes Asian/Pacific Islanders and American Indians). Hispanic and black women in Texas and those under 65 years of age also had lower screening for cervical cancer than similar women in the United States (Table 16).

Table 15. Cervical Cancer Cases and Percent of Total by Race and Ethnicity and Stage at Diagnosis, Texas, 2001-2005

Cervix	Total Cases	Percent Early Stage	Percent Late Stage	Percent Unknown
Non-Hispanic White	2,448	49.1	37.7	13.3
Black	715	40.8	45.7	13.4
Hispanic	2,084	45.0	42.7	12.3
Asian/Pacific Islander	103	54.4	33.0	12.6

Note: Early = localized. Late = regional + distant. Number of cases is a five-year total. Percentages are based on unrounded counts and totals.
Cases of unknown race are not included.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Table 16. Prevalence of Women (Ages 18 Years and Older)* Who Have Had a Pap Test Within the Past Three Years, Texas and United States, 2006

	Texas Percent	U.S. Percent
Total	**80.2**	**83.9**
Age Groups (Years)		
18 to 44	81.0	85.3
45 to 64	79.5	86.5
65+	76.5	70.7
Race and Ethnicity		
Non-Hispanic White	82.2	84.4
Black	81.0	87.0
Hispanic	77.4	81.6
Other	68.7	77.3
Low Education**	72.2	74.1
Low Income***	79.0	77.0

*Women with an intact cervix
** Adults 18 years of age and older with less than a high school diploma.
***Adults 18 years of age and older that have a total household income of less than $25,000.
Note: All reported rates are weighted for Texas demographics and the probability of selection.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2006.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

Colon and Rectum Cancer

Colon and Rectum Cancer, Texas, 2001-2005

	MALE		FEMALE		TOTAL
	Avg. Count/Yr.	Avg. Rate/Yr.	Avg. Count/Yr.	Avg. Rate/Yr.	Avg. Count/Yr.
Incidence	4,812	58.9	4,199	40.2	9,011
Mortality	1,699	21.9	1,555	14.7	3,254

Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Approximately 9,000 new cases of cancers of the colon and rectum combined (hereafter referred to as colorectal cancer) are diagnosed in Texas each year. Another 3,250 deaths are caused by the disease. Colorectal cancer accounts for approximately 11% of all cancer incidence and 10% of all cancer mortality in Texas, men and women combined. When considering the total number of newly diagnosed cancer cases among men and women, colorectal cancer is the third most common cancer among men (following prostate and lung) and third among women (following breast and lung) (Figure 6). For both sexes combined, colorectal cancer is second (following lung) in the number of total cancer deaths in the state (Figure 7). The risk of colorectal cancer increases significantly with age. Seven of every ten Texas residents who develop colorectal cancer are age 60 or older at the time of diagnosis (Table 17).

Overall, incidence rates for colorectal cancer in Texas are highest among black men and lowest among Asian/Pacific Islander men and women (Figure 18). Mortality rates also show similar racial and ethnic differences as those seen for incidence (Figure 19). Differences in incidence rates among different racial and ethnic groups may be partly because of dietary and physical activity patterns.[14] In terms of mortality, studies suggest a number of reasons for the disparity, including, in the United States as a whole, the tendency for blacks to have a diagnosis at later stages, when treatment for their cancer is less likely to be successful.[15]

Between 1996 and 2005, age-adjusted mortality rates for colon (excluding rectum) cancer declined 3.1% and 2.5% annually among Texas men and women, respectively (Figure 4). Rectal cancer mortality rates also declined annually but at a lower rate. Incidence rates of colon and rectal cancers in both sexes declined over this same period (Figure 5).

Colorectal Cancer Prevention, Early Detection And Screening

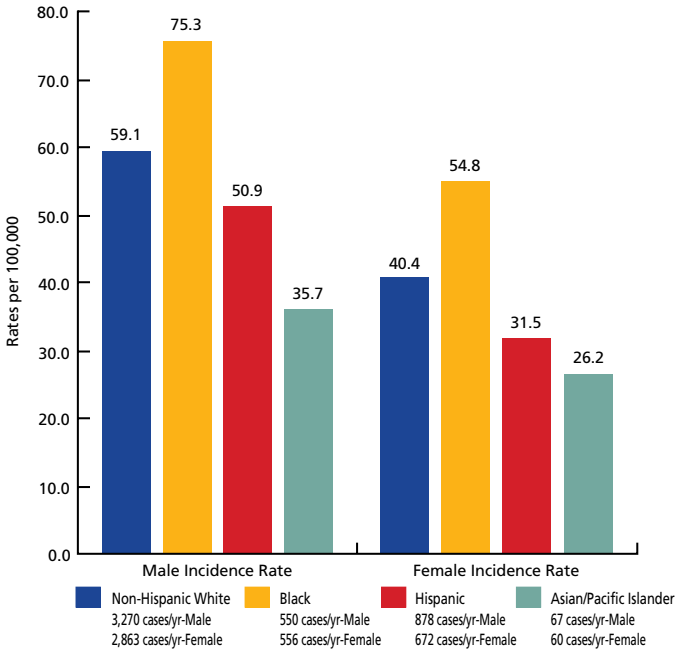
Approximately 90% of all colorectal cancer cases and deaths are thought to be preventable. Screening tests that detect occult blood in the stool or identify adenomatous polyps can prevent the occurrence of colorectal cancers by allowing

Table 17. Colon and Rectum Cancer Incidence Rates, Counts, and Percentage of Total New Cancers by Age of Diagnosis, Texas, 2001-2005

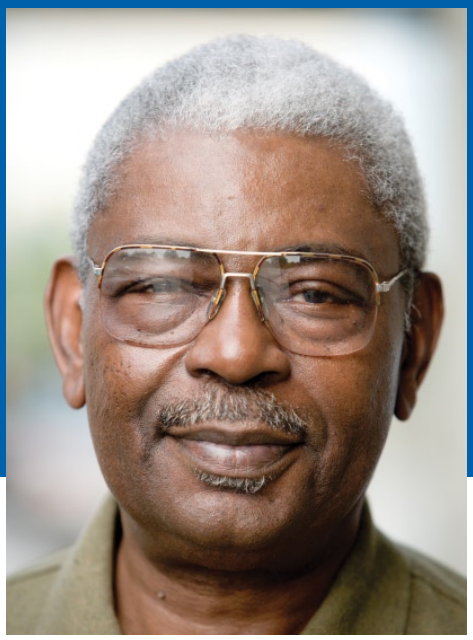
	Male Age Specific Rates	Male Average Annual Cases	% of Newly Diagnosed Male Colon and Rectum Cancer Cases	Female Age Specific Rates	Female Average Annual Cases	% of Newly Diagnosed Female Colon and Rectum Cancer Cases
0-29	0.5	24	0.5	0.5	25	0.6
30-39	6.2	105	2.2	6.2	102	2.4
40-49	24.7	405	8.4	20.9	343	8.2
50-59	79.4	933	19.4	56.0	687	16.4
60-69	182.8	1,240	25.8	110.5	835	19.9
70-79	310.0	1,318	27.4	201.3	1,119	26.6
80+	398.5	787	16.3	291.5	1,088	25.9
Total		**4,812**	**100.0**		**4,199**	**100.0**

Note: Incidence counts are five-year average annual, rounded to the nearest whole.
Rates are age-specific annual rates per 100,000.
Incidence includes invasive cancers only.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 18. Colon and Rectum Cancer Incidence Counts and Rates by Race and Ethnicity, Texas, 2001-2005



Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Cases and deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008.

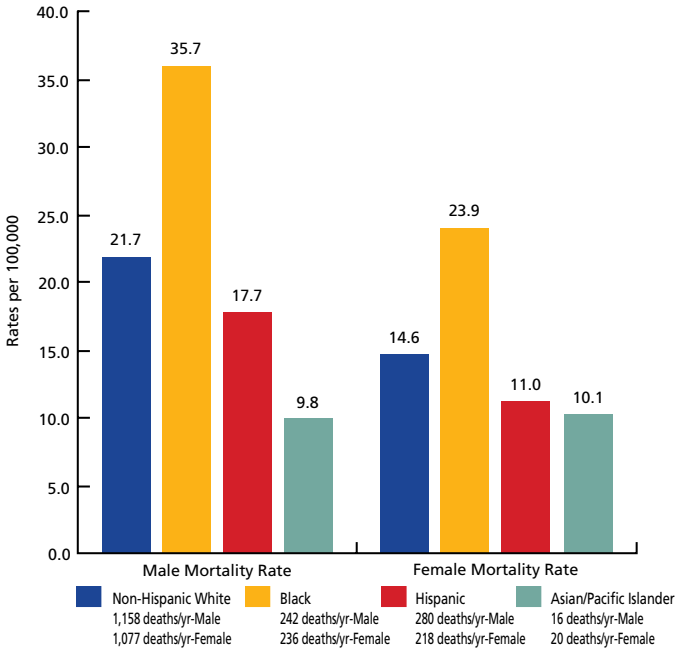


detection and removal of pre-cancerous lesions. Beginning at age 50, men and women at average risk should follow a colorectal screening examination schedule that tests to detect adenomatous polyps and cancer, including such tests as a flexible sigmoidoscopy or colonoscopy, or tests to primarily detect cancer, including guaiac-based fecal occult blood testing (gFOBT) *(see screening guidelines on page 43 for all tests and schedules)*. Potentially modifiable factors include healthy dietary patterns, regular physical activity, and avoidance of obesity and smoking. Non-modifiable risk factors include a strong family history of colon cancer or adenomatous polyps. However, almost 75% of all colon cancers occur in people with no known predisposing factors.

Survival from colorectal cancer is 90% when the cancer is diagnosed before it has extended beyond the intestinal wall (Table 6). With distant spread, survival is only 11%.

On average, less than 40% of the more than 9,000 cases of colon and rectum cancers diagnosed annually in Texas were →

Figure 19. Colon and Rectum Cancer Mortality Counts and Rates by Race and Ethnicity, Texas, 2001-2005



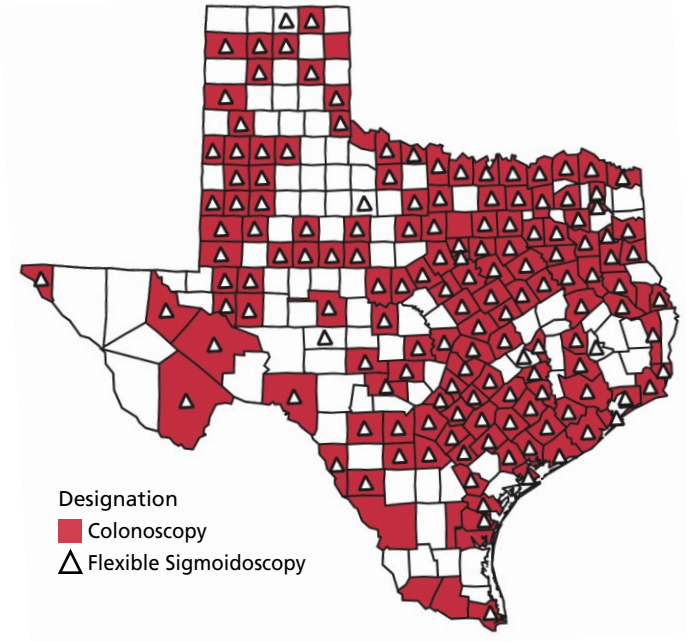
Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry and Center for Health Statistics, Texas Department of State Health Services.

Table 18. Colon and Rectum Cancer Cases and Percent of Total by Race and Ethnicity and Stage at Diagnosis, Texas, 2001-2005

Colon and Rectum	Total Cases	Percent Early Stage	Percent Late Stage	Percent Unknown
Non-Hispanic White	32,204	40.0	49.5	10.5
Black	5,826	35.5	52.2	12.3
Hispanic	8,063	35.7	53.5	10.7
Asian/Pacific Islander	661	37.1	52.0	10.9

Note: Early = in situ + localized. Late = regional + distant. Number of cases is a five-year total. Percentages are based on unrounded counts and totals.
Cases of unknown race are not included.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 20. Texas Counties with Endoscopic Screening Services for Colorectal Cancer



Source: Texas Cancer Information, May 2008
Data from surveys of physicians, hospitals and freestanding cancer centers.
Counties with shading or symbols have at least one physician or facility that provides the specified screening service.

early stage. Non-Hispanic whites, compared with other racial and ethnic groups in Texas, were more frequently diagnosed with early stage colorectal cancers (Table 18).

In a survey of more than 3,500 Texans age 50 and older, 46% reported having the recommended screening exams (sigmoidoscopy or colonoscopy) within the past 5 years. Only 14% reported having a fecal occult blood test (FOBT) in the past year (Table 19). Screening rates are affected by the availability of endoscopic screening facilities and providers. Of the 158 counties having colonoscopy or flexible sigmoidoscopy service providers, 144 had fewer than 10 providers in the county. Most of the providers identified (55.1%) were in the 14 counties identified as having 10 or more providers. These counties include Harris, Dallas, Tarrant, Bexar, Travis, Nueces, Collin, El Paso, Lubbock, Brazos, Bell, McLennan, Cameron and Smith. It should be noted that there may be overlap in the number of providers per county if a physician who performs a service and the hospital or freestanding center where he practices both indicated that they offer the service (Figure 20).

Table 19. Prevalence of Adults (Ages 50 Years and Older) Who Had a Blood Stool Test Within the Past Year or a Sigmoidoscopy or Colonoscopy Within the Past Five Years, Texas, 2006

	Blood Stool Test Within the Past Year		Sigmoidoscopy or Colonoscopy Within the Past Five Years	
	Texas Percent	U.S. Percent	Texas Percent	U.S. Percent
Total	**14**	**16**	**46**	**50**
Age Groups (Years)				
50 to 64	12	13	38	45
65+	17	20	59	57
Males	15	17	46	50
50 to 64	14	14	38	45
65+	16	21	61	59
Females	12	15	46	49
50 to 64	10	13	39	45
65+	17	19	57	55
Race and Ethnicity				
Non-Hispanic White	15	17	49	52
Black	13	17	45	49
Hispanic	10	10	34	37
Other	7	16	28	44
Low Education*	9	12	35	38
Low Income**	12	15	37	42

* Adults with less than a high school diploma.
**Adults that have a total household income of less than $25,000.
Notes: All reported rates are weighted for Texas demographics and the probability of selection. Percentages are rounded.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2006.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

Lung and Bronchus Cancer

Lung and Bronchus Cancer, Texas, 2001-2005

	MALE		FEMALE		TOTAL
	Avg. Count/Yr.	Avg. Rate/Yr.	Avg. Count/Yr.	Avg. Rate/Yr.	Avg. Count/Yr.
Incidence	7,180	89.6	5,232	51.1	12,413
Mortality	5,690	72.6	3,946	38.5	9,637

Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Approximately 12,400 new cases of lung and bronchus cancer (hereafter referred to as lung cancer) are diagnosed in Texas each year and 9,600 residents die from the disease. Lung cancer is the second most common cancer diagnosed among Texas men and women. It is first, however, in the number of cancer-related deaths among both men and women, all racial and ethnic groups combined. The primary contributing factor for the vast majority of lung cancer is tobacco use. The risk of lung cancer increases significantly with age. Close to 80% of Texas residents who develop lung cancer are age 60 or older at the time of diagnosis (Table 20).

Sex and race and ethnicity also are factors in lung cancer incidence and mortality rates. Lung cancer incidence and mortality rates in Texas males are nearly twice that of Texas females. This is similar to national trends. Also similar to national trends is the disproportionate cancer burden borne by black men. Lung cancer mortality rates in Texas black men are nearly 1.4 times higher than those of non-Hispanic white men, and 2.7 times higher than for Hispanic men. Among Texas women, lung cancer incidence and mortality rates are highest among non-Hispanic whites (Figures 21 and 22). Between 1996 and 2005, age-adjusted rates for males of all races decreased 2% annually in incidence and 2.6% in mortality, partly because of decreased smoking rates over the past 30 years (Figures 4 and 5). However, decreasing smoking patterns among women lag behind those of men, and the age-adjusted lung cancer incidence rate for women of all races showed no change and the mortality rate decreased less than 1% percent annually between 1996 and 2005 (Figure 5).

The Human and Economic Toll of Tobacco Use

Tobacco use is the leading cause of preventable disease and death inTexas.[16] There are more deaths due to smoking-related causes than from alcohol, car accidents, illegal drugs, suicides, homicide, driving while intoxicated, and fire combined.

Every year more than 24,100 Texans die from a smoking-related illness such as cancer or cardiovascular and respiratory disease. Tobacco use is also responsible for a wide range of other health conditions. Cigarette smoking causes many diseases and affects every organ of the body.[16] Although lung cancer was the first disease linked to smoking, over the years the list has grown to include cancers of the mouth,

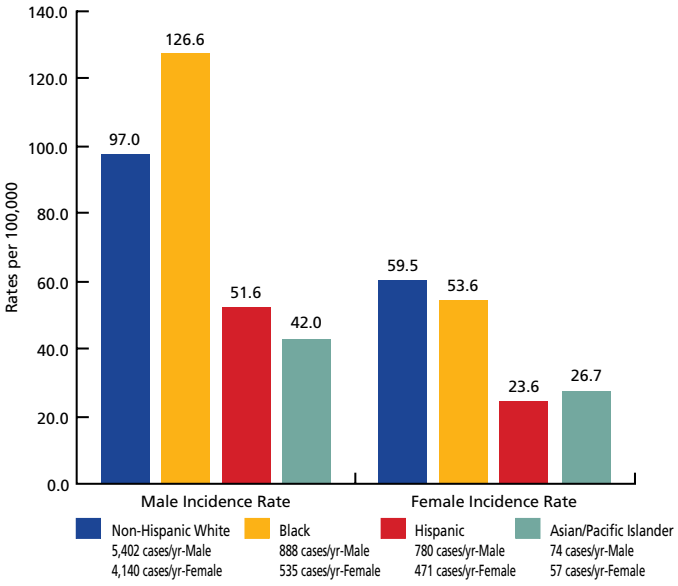
→

Table 20. Lung and Bronchus Cancer Incidence Rates, Counts, and Percentage of Total New Cancers By Age of Diagnosis, Texas, 2001-2005

	Male Age Specific Rates	Male Average Annual Cases	% of Newly Diagnosed Male Lung and Bronchus Cancer Cases	Female Age Specific Rates	Female Average Annual Cases	% of Newly Diagnosed Female Lung and Bronchus Cancer Cases
0-29	0.1	8	0.1	0.2	8	0.2
30-39	2.2	36	0.5	2.1	34	0.7
40-49	22.2	364	5.1	17.3	283	5.4
50-59	95.7	1,125	15.7	60.5	742	14.2
60-69	312.4	2,119	29.5	189.4	1,431	27.4
70-79	568.1	2,416	33.6	318.9	1,772	33.9
80+	563.9	1,113	15.5	257.5	961	18.4
Total		**7,180**	**100.0**		**5,232**	**100.0**

Notes: Incidence counts are five-year average annual, rounded to the nearest whole.
Rates are age-specific annual rates per 100,000.
Incidence includes invasive cancers only.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 21. Lung and Bronchus Cancer Incidence Counts and Rates by Race and Ethnicity, Texas, 2001-2005



Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Cases and deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008.

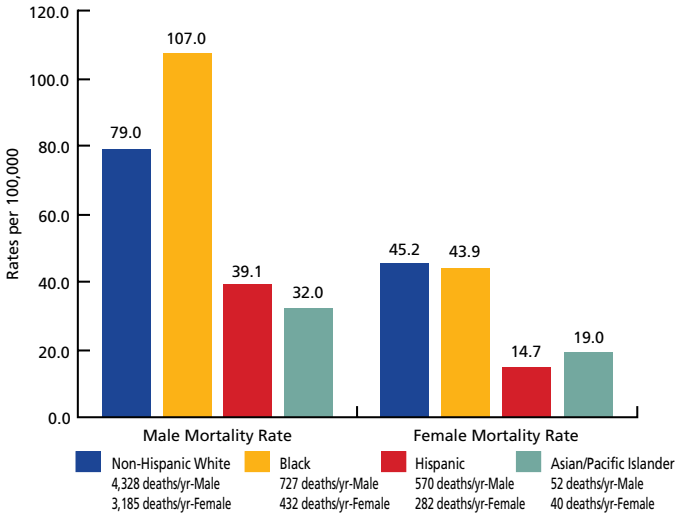
esophagus, stomach, liver, pancreas, larynx, nasopharynx, nasal cavity and sinuses, cervix, urinary bladder, kidney and acute myeloid leukemia. In the United States, more than 90% of lung cancer in men, 90% of all esophageal cancers and at least 30% of all lung cancer deaths are due to tobacco use.[17,18]

Tobacco-related cancers have had a marked effect on the health and quality of life of Texans. It is estimated that in 2005, over 27,000 Texans were newly diagnosed and approximately 17,800 Texans died from tobacco-related cancers including cancers of the lung, oral cavity and pharynx, esophagus, bladder, pancreas, kidney, cervix, stomach and acute myeloid leukemia.[19] As mentioned previously, the number one cause of cancer deaths among Texas men and women is lung cancer. More people die from lung cancer than from other cancers partly because most cases are diagnosed at a late stage of disease (Table 21).

Tobacco Use in Texas

In 2007, an estimated 3.3 million Texans over 18 years of age, or 19.3% of the adult population were current smokers (Table 22). Analysis of data by age, gender, and race and ethnicity shows that the groups with the highest level of cigarette use include those 18 to 24 years old, adult men, blacks and non-Hispanic whites. The only group to approach the Healthy People 2010 goal of 12% is adults over 65 years of age. Compared with prevalence for the United States as a whole, the prevalence of smoking in Texas is comparable for most groups. Although smoking in Texas has decreased from 23.7% in 1995 to 19.3% in 2007, it is still higher than the National Healthy People 2010 goal.

Figure 22. Lung and Bronchus Cancer Mortality Counts and Rates by Race and Ethnicity, Texas, 2001-2005



Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry and Center for Health Statistics, Texas Department of State Health Services.

Tobacco Use Costs Texans Money

The negative health effects of tobacco use lead to a low quality of life for Texans and also have a large financial cost to individuals and society. In 1998/1999, tobacco use cost Texans about $11 billion. This includes direct medical costs of $4.55 billion and lost productivity costs of $5.54 billion. In 1998, about 15% ($1,265,000,000 or $543.87 per recipient) of all Texas Medicaid expenditures were spent on smoking-related illnesses and diseases.*

*Miller L, Zhang X, Novotny T, Rice D, Max W. State estimates of Medicaid expenditures attributable to cigarette, fiscal year 1993. *Public Health Reports* 1998; 113(2):140-151.

Tobacco use among Texas youth continues to be a problem. In 2007, approximately 21% of high school students consider themselves to be current smokers and 27% report being current users of any tobacco product (Table 23). Nearly half of current high school smokers report trying to quit smoking within the past year. Texas youth smoking rates vary by gender, race and ethnicity and grade level. Texas high school boys (grades 9–12) are more likely to smoke than high school girls (23% versus 19%) and the smoking prevalence increases with grade level, to nearly 30% for 12th graders. Of the race and ethnic groups, non-Hispanic white high school students have the highest current smoking rate (27%), much higher than the national goal of reducing cigarette use in high school students to no more than 16% by 2010. In 2007, smoking levels among black students and 9th graders have reached this national goal. Although youths overall report less use of smokeless tobacco than cigarettes in 2007 (8% versus 21%), 13% of high school boys, non-Hispanic whites and 12th graders have used smokeless tobacco at least once in the past 30 days (Table 23).

Parts of the above are excerpted from the *Texas Tobacco Control Plan 2008*, Texas Cancer Council (now the Cancer Prevention and Research Institute of Texas). Full text is available at *www.cprit.state.tx.us*.

Table 21. Lung and Bronchus Cancer Cases and Percent of Total by Race and Ethnicity and Stage at Diagnosis, Texas, 2001-2005

Lung and Bronchus	Total Cases	Percent Early Stage	Percent Late Stage	Percent Unknown
Non-Hispanic White	47,760	18.2	63.4	18.4
Black	7,120	14.1	68.4	17.5
Hispanic	6,266	12.5	68.4	19.2
Asian/Pacific Islander	652	15.6	67.8	16.6

Note: Early = in situ + localized. Late = regional + distant. Number of cases is a five-year total. Percentages are based on unrounded counts and totals.
Cases of unknown race are not included.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Table 22. Prevalence of Current Smoking among Adults (Ages 18 Years and Older) Texas and United States, 2007

Current Cigarette Smoking	Texas Percent	U.S. Percent
Total	**19.3**	**19.4**
Sex		
Male	21.9	21.5
Female	16.9	17.4
Race and Ethnicity		
Non-Hispanic White	20.5	19.7
Black	21.4	21.5
Hispanic	17.5	16.3
Other	15.8	19.5
Age Group		
18-24 years	23.7	23.8
25-44 years	21.0	22.0
45-64 years	20.2	20.1
65+ years	9.8	9.0
Low Education*	26.6	29.0
Low Income**	27.3	27.3
Current Smokeless Tobacco Use***		
Males	9.1	N/A

Current cigarette smoking defined as having ever smoked 100 cigarettes in lifetime and are smoking everyday or somedays.
* Adults 18 years of age and over with less than a high school diploma.
**Adults 18 years of age and over that have a total household income of less than $25,000.
*** Data for 2006 and available for only Texas
Note: All reported rates are weighted for Texas demographics and the probability of selection.
Percentages have been rounded.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2007.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

General Tips for Quitting Smoking

- Talk to your doctor, nurse, or pharmacist about which medicines are right for you.
- Write down your reasons for wanting to quit; keep the list with you for extra motivation.
- Throw away all of your cigarettes and ashtrays.
- Substitute the activities you do while smoking with other habits.
- Set a quit date and plan ahead to help deal with cravings.
- Tell your family, friends, and co-workers about your plans to quit.
- Have alternatives to smoking available, such as peppermints, carrot, sticks, toothpicks, or cinnamon sticks.
- Stay busy.
- Avoid situations that always trigger an urge to smoke.
- **Call your American Cancer Society at 1-800-ACS-2345 for more information, ideas, and resources.**

Source: Hughes JR. New treatments for smoking cessation. CA: *Cancer J Clin.* 2000;50:143-151.

Smoking "damages nearly every cell in your body."

Richard Carmona, Surgeon General of the United States, May 2004

Cancer of the:
- Lung
- Nasal cavity & sinus
- Mouth
- Pharynx
- Larynx
- Esophagus
- Stomach
- Pancreas
- Liver
- Bladder
- Kidney
- Cervix
- Acute myeloid leukemia

Other Diseases:
- Emphysema
- Gastric ulcers
- Cerebrovascular disease
- Chronic bronchitis
- Heart disease
- Abdominal aortic aneurysm

Protecting Workers from Secondhand Smoke

States and cities across the nation are going smoke-free in record numbers. At publication time, 24 states had passed comprehensive laws to make workplaces smoke-free, including restaurants and bars. Texas is not currently smoke-free as a state, but 21 Texas cities have passed similar comprehensive worksite laws that include restaurants and bars. Although more than 50% of the nation is protected by smoke-free laws, only about 26% of Texas is protected by city ordinances.

Smoke-Free Texas, a coalition of health agencies, worked hard but was unable to pass a smoke-free Texas law during the 2007 legislative session. An effort will be mounted once again during the 2009 Texas legislative session. Updates can be viewed online at *smokefreetexas.org*. The executive committee of Smoke-Free Texas includes the American Cancer Society, American Heart Association, American Lung Association, Campaign for Tobacco-Free Kids, Texas Medical Association, and Texas PTA.

According to the 2006 Surgeon General's report, secondhand smoke causes the same diseases as smoking — cancer, heart disease, asthma, emphysema, and other diseases.[20] Secondhand smoke contains more than 60 cancer-causing chemicals, kills about 53,000 nonsmoking Americans each year, and is the third leading cause of preventable death. The report clearly states that there is no safe level of secondhand smoke and that the best way to protect nonsmokers is to eliminate it in public places.

The University of Houston has developed the Texas Smoke-Free Ordinance Database which tracks the status of city smoking ordinances in Texas. For details regarding specific city ordinances, the site can be accessed at *http://txshsord.coe.uh.edu/*.

Table 23. Prevalence of Tobacco Use by Texas High School Students, Grades 9-12, 2007

	Current Users of Any Tobacco Products (Used in at least 1 of the past 30 days) Percent	Current Smokers of Cigarettes (Smoked in at least 1 of the past 30 days) Percent	Current Users of Smokeless Tobacco (Used in at least 1 of the past 30 days) Percent	Current Users of Cigars (Smoked in at least 1 of the past 30 days) Percent	Current Smokers of Cigarettes Who Tried Quitting (Tried during past 12 months) Percent
Total High School	**27**	**21**	**8**	**15**	**49**
Sex					
Male	31	23	13	18	44
Female	23	19	3	13	55
Race and Ethnicity					
Non-Hispanic White	33	27	13	17	50
Black	17	11	3	12	NR
Hispanic	24	19	5	14	49
Other	21	18	4	13	NR
Grade Level					
9th	18	14	5	12	53
10th	27	21	9	16	50
11th	27	22	6	15	47
12th	39	30	13	21	45

Notes: All reported rates are weighted for Texas demographics and the probability of selection. Percentages are rounded. NR = Not reported.
Source: Texas Youth Risk Behavioral Surveillance System Dataset, Statewide YRBS Survey, 2007.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

Prostate Cancer

Approximately 12,000 new cases of invasive prostate cancer are diagnosed in Texas each year. Another 1,700 men die from the disease. Among men in all racial and ethnic groups, prostate cancer is the leading type of cancer diagnosed. It is the second leading cause of cancer deaths among black men and the third leading cause among non-Hispanic white men in Texas (Table 9). Prostate cancer accounts for approximately 26% of total cancer incidence and 9% of total cancer deaths in Texas men. Age is the strongest factor associated with prostate cancer. After age 60, prostate cancer incidence and mortality rates rise dramatically in all racial and ethnic groups. Of Texas men who develop prostate cancer, 97% are age 50 or older at the time of diagnosis, and nearly 80% are age 60 or older at the time of diagnosis (Table 24).

Prostate Cancer, Texas, 2001-2005

	Avg. Count/Yr.	Avg. Rate/Yr.
Incidence	11,878	144.6
Mortality	1,681	25.5

Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Prostate cancer incidence rates (new cases per 100,000 males) are disproportionately high among blacks — approximately 1.5 times higher than those of non-Hispanic whites, and nearly two times higher than rates among Hispanic men in the state (Figure 23). This disparity between blacks and other racial and ethnic groups is consistent with national trends, although the reason for the significantly higher rate of prostate cancer incidence in blacks is unknown. Genetic studies suggest that strong familial predisposition may be responsible for 5% to10% of prostate cancers.

Between 1996 and 2005, age-adjusted prostate mortality rates for Texas men, all races, decreased almost 5% each year (Figure 4). However, as with prostate cancer incidence rates, mortality rates among black men in Texas are significantly higher when compared to all other racial and ethnic groups (Figure 23). Black men have prostate cancer mortality rates more than two times higher than those of non-Hispanic whites, almost three times higher than the rate among Hispanics, and almost seven times the rate of Asian/Pacific Islanders. As noted above, when compared with Texas non-Hispanic white men, the prostate cancer incidence rate for black men is 50% higher but the mortality rate is nearly 130% higher. Such disparity when comparing the mortality rate to the incidence rate among black men may be related to several factors, including lack of timely and appropriate treatment, more aggressive tumors, and later stage at diagnosis.

Prostate Cancer Early Detection and Screening

According to the American Cancer Society's screening recommendations, the prostate-specific antigen (PSA)

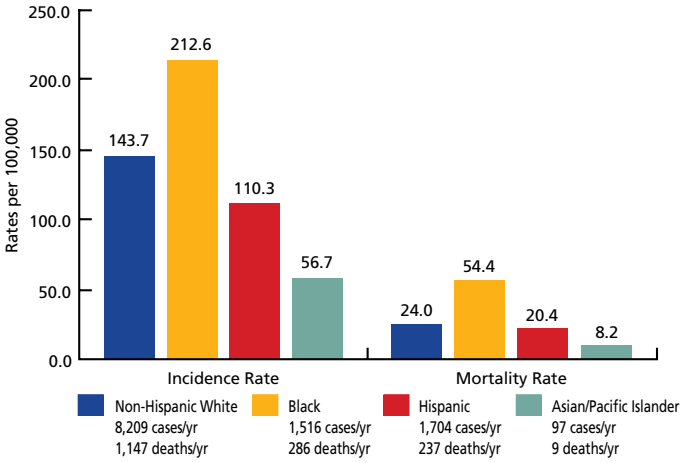
→

Table 24. Prostate Cancer Incidence Rates, Counts, and Percentage of Total New Cancers by Age of Diagnosis, Texas, 2001-2005

	Age Specific Rates	Total Cases	Average Annual Cases	% of Newly Diagnosed Prostate Cancer Cases
0-29	0.1	16	3	0.0
30-39	0.7	57	11	0.1
40-49	19.6	1,607	321	2.7
50-59	188.5	11,082	2,216	18.7
60-69	628.7	21,317	4,263	35.9
70-79	868.7	18,471	3,694	31.1
80+	692.9	6,838	1,368	11.5
Total			**11,878**	**100.0**

Note: Incidence counts are five-year average annual, rounded to the nearest whole.
Rates are age-specific annual rates per 100,000.
Incidence includes invasive cancers only. In situ cases are excluded.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 23. Prostate Cancer Incidence and Mortality Counts and Rates by Race and Ethnicity, Texas, 2001-2005



Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Cases and deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Table 25. Prostate Cancer Cases and Percent of Total by Race and Ethnicity and Stage at Diagnosis, Texas, 2001-2005

Prostate	Total Cases	Percent Early Stage	Percent Late Stage	Percent Unknown
Non-Hispanic White	41,074	73.5	11.8	14.7
Black	7,580	69.5	14.7	15.8
Hispanic	8,527	66.0	14.4	19.6
Asian/Pacific Islander	484	73.8	11.4	14.9

Note: Early = in situ + localized. Late = regional + distant. Number of cases is a five-year total. Percentages are based on unrounded counts and totals.
Cases of unknown race are not included.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

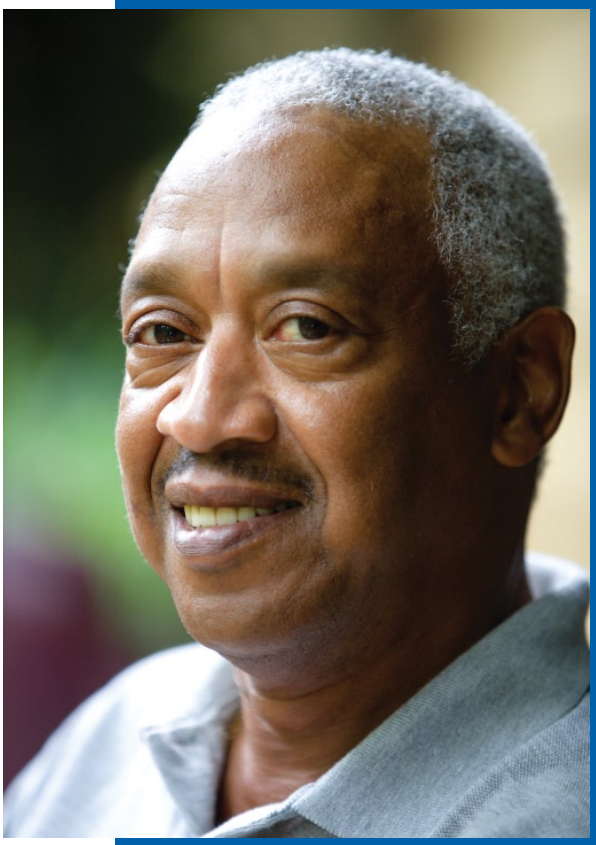
Table 26. Prevelance of Adult Males (Ages 40 Years and Older) Who Have Had a Digital Rectal Exam, Texas and United States, 2006

	TEXAS		U.S.	
	DRE Within the Past Year Percent	DRE Within the Past 5 Years Percent	DRE Within the Past Year Percent	DRE Within the Past 5 Years Percent
Total	**38**	**62**	**41**	**67**
Age Groups (Years)				
40 to 64	33	57	36	62
65+	59	79	58	81
Race/Ethnicity				
Non-Hispanic White	41	67	44	70
Black	36	58	40	64
Hispanic	28	44	30	50
Other	NR	NR	31	53
Low Education*	23	40	30	51
Low Income**	31	48	34	56

DRE = Digital Rectal Exam
NR = Not reported
* Men 40 years of age and over with less than a high school diploma.
**Men 40 years and over years of age who have a total household income of less than $25,000.
Notes: All reported rates are weighted for Texas demographics and the probability of selection. Percentages are rounded.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2006.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

test and the digital rectal examination (DRE) should be offered annually beginning at age 50 to men who have a life expectancy of at least 10 years. Men at high risk (black men and men who have a first-degree relative diagnosed with prostate cancer at a young age) should begin testing at age 45. Unlike many other cancers, prostate cancer often grows slowly. Information regarding potential risks and benefits of early detection and treatment should be given by physicians to their patients, to assist men in making informed decisions about screening and treatment.

Five-year relative survival trends for prostate cancer have improved dramatically over the last 25 or so years. The 5-year relative survival for men diagnosed with prostate cancer is now nearly 100% (Table 5). Over 70% of the 12,000 prostate cancer cases diagnosed annually in Texas (all races combined) are diagnosed at its earliest stage. State data indicate that black and Hispanic men are less likely than non-Hispanic white men to have prostate cancer diagnosed at its earliest stage (Table 25). In a survey of 1700 Texas men age 40 and older, 62% of all respondents reported having a DRE test within the past 5 years and 38% reported having the test within the past year. Hispanics and men with less than a high school education and a low income had the lowest prevalence of prostate cancer screening (Table 26). Compared with US men, Texas men had fewer DRE tests within the past year and the past 5 years.



Skin Cancer (Melanoma of the Skin)

Approximately 2,700 new cases of melanoma of the skin are diagnosed in Texas each year. However, the number of newly diagnosed melanomas in Texas is thought to be significantly under reported. On average, 480 Texans will die from the disease. Skin cancer of all types is associated with exposure to the sun. Melanoma is much less common than basal cell and squamous cell skin cancers, but it is far more serious. Although melanoma of the skin ranks seventh in the 10 leading cancer sites among men and tenth in women (representing 3.5% and 2.7% of total cancer cases, respectively), it remains a significant concern because the number of new melanomas diagnosed each year in the United States has doubled. Our state's intense year-round sunshine puts our citizens, especially those who have fair skin, work outdoors, and/or spend a great deal of recreational time in the sun, at greater risk of melanoma. The incidence of melanoma in Texas rose approximately 5% annually between 1996 and 2005 (Figure 5). Although improvements in reporting of melanoma cases to the TCR may explain some of this increase, rates in the United States also show a significant increase of 2.2% annually in whites.[3] Although incidence rates have increased, the good news is that mortality rates have declined. For the period from 1996-2005, age-adjusted melanoma mortality rates declined annually, slightly over 1% in Texas males and almost 3% among Texas females (Figure 4). Declining rates in melanoma mortality also were seen nationally.[3]

Skin Cancer (Melanoma of the Skin), Texas, 2001-2005

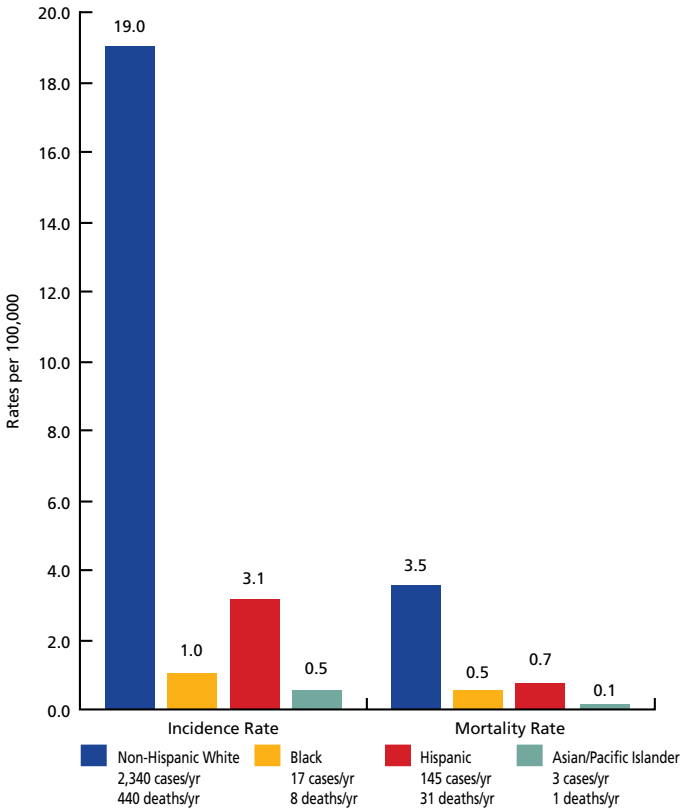
	MALE		FEMALE		TOTAL
	Avg. Count/Yr.	Avg. Rate/Yr.	Avg. Count/Yr.	Avg. Rate/Yr.	Avg. Count/Yr.
Incidence	1,596	18.3	1,089	10.2	2,686
Mortality	310	3.8	172	1.6	482

Source: Texas Cancer Registry, 1995-2005 incidence based on 2008 NPCR submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

Age is another factor associated with melanoma incidence and mortality rates. Although melanoma is rare in children, incidence increases beginning in the early teenage years and continues to increase with advancing age. Melanoma of the skin is the seventh leading cancer in Texas adolescents 15-19 years of age.

Race and ethnicity is the leading factor in all skin cancers, including melanoma. Melanoma, like all skin cancer, is primarily a disease of non-Hispanic white persons. Texas non-Hispanic whites have the highest incidence rates — about 6 times higher than Hispanics, 19 times higher than blacks and 38 times the rate in Asian/Pacific Islanders (Figure 24). Deaths from melanoma of the skin also are substantially higher for non-Hispanic whites than for Hispanics, blacks and Asian/Pacific Islanders. →

Figure 24. Melanoma of the Skin Incidence and Mortality Counts and Rates by Race and Ethnicity, Texas, 2001-2005



Notes: Rates are average annual rates per 100,000 and are age-adjusted to the 2000 U.S. standard population.
Cases and deaths are average annual, rounded to the nearest whole.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008 and Center for Health Statistics, Texas Department of State Health Services.

A Simple ABCDE Rule Outlining the Warning Signals for Melanoma

A Asymmetry of mole (one side does not match the other);

B Border irregularity (edges are ragged, notched, or blurred);

C Color (pigmentation is not uniform, with variable degrees of tan, brown, or black);

D Diameter (the size is greater than 6 millimeters, and any sudden or progressive increase in size should be of concern);

E Evolving — a change in an existing mole such as itching or bleeding

Melanoma, detected early, is most likely to be completely cured. Part of a routine cancer-related checkup should include a skin examination by a health care professional qualified to diagnose skin cancer. Monthly skin self-examinations and awareness of the warning signs of melanomas may be helpful in detecting melanoma at an early, curable stage.

The 5-year relative survival from melanoma is to 99% when the cancer is diagnosed at its earliest stage (Table 6). This 5-year survival rate drastically worsens with late stage diagnosis when cancer has metastasized to parts of the body remote from the primary. Between 2001 and 2005, more than 70% of the reported melanomas of the skin diagnosed in Texas among non-Hispanic whites and Asian/Pacific Islanders were early stage. Hispanics and blacks were more often diagnosed at a later stage (Table 27).

Actions to Take to Help Prevent Skin Cancers[24,25]

- ✓ Limit or avoid the sun between 10:00 a.m. and 4:00 p.m.
- ✓ When outdoors, cover as much skin as possible.
- ✓ Wear a hat that shades the face, neck, and ears.
- ✓ Wear sunglasses to protect the skin around the eyes.
- ✓ Use sun screens with SPF 15 or greater sun protection.
- ✓ Protect children from sun exposure.
- ✓ Avoid tanning beds and sun lamps.

Table 27. Melanoma of the Skin Cases and Percent of Total by Race and Ethnicity and Stage at Diagnosis, Texas, 2001-2005

Melanoma of the Skin	Total Cases	Percent Early Stage	Percent Late Stage	Percent Unknown
Non-Hispanic White	16,039	73.2	9.6	17.2
Black	104	54.8	24.0	21.2
Hispanic	938	67.1	17.8	15.1
Asian/Pacific Islander	23	78.3	4.3	17.4

Note: Early = in situ + local. Late = regional + distant. Number of cases is a five-year total. Percentages are based on unrounded counts and totals.
Cases of unknown race are not included.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Skin Cancer Prevention, Early Detection And Screening

The vast majority of skin cancers are caused by unprotected exposure to excessive ultraviolet radiation, primarily from the sun.[21] Other risk factors that may contribute to the development of skin cancer include:

- History of severe sunburn occurring in childhood and adolescence[22]
- Fair-to-light skin complexion[22]
- Gender (men are 1.5 times more likely to develop melanoma of the skin than women)[2]
- Age (about 70% of melanomas occur in people over the age of 50)[2]
- Race (risk of melanoma is nearly 20 times higher for U.S. whites than for blacks) [2]
- Personal or family history of melanoma[22]
- Presence of atypical moles or a large quantity of moles (greater than 50) [23]
- Occupational exposure to coal tar, pitch, creosote, arsenic compounds, or radiation. [23]

The greatest reduction in the number of skin cancer cases and reduction in the pain and loss of life from this disease will come from preventive strategies.

Cancer in Children and Adolescents

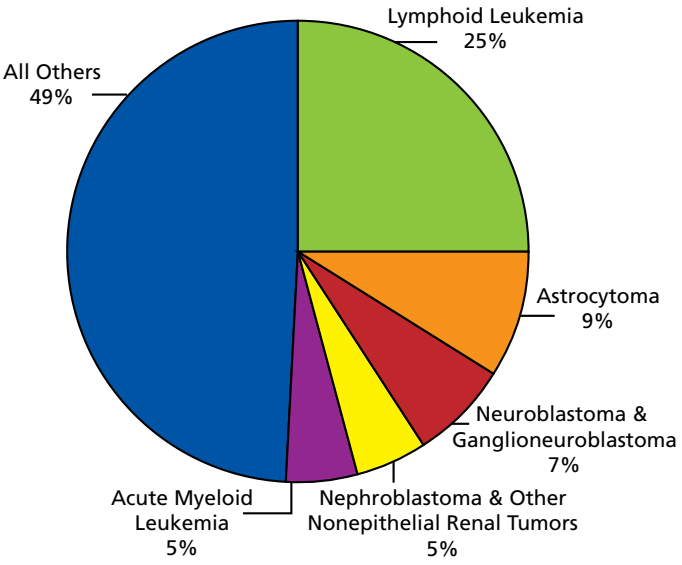
When considering the occurrence of cancer across all age groups, one sees that childhood cancer is rare, with less than 1% of all cancers occurring before the age of 15. Although the absolute number of deaths attributed to cancer in children and adolescents is low relative to adults, the toll in terms of potential years of life lost is high; and cancer remains the second leading cause of death among Texas children aged 1 to 14 years. Cancer is diagnosed in approximately 1,200 Texas children and young adults under age 20 each year. Close to 200 die from the disease.

In contrast to common adult malignancies, the major causes of childhood cancers remain unknown. Far more is known about potentially modifiable risk factors for adult malignancies than for childhood malignancies. For children, genetic factors are likely to play a more prominent etiological role; however, cancers that occur in adolescence and young adulthood probably represent more of a mix of genetic and environmental causes.

Although cancers among adults are categorized by the anatomical site of the primary tumor, childhood and adolescent cancers are classified primarily by histology (cell type) into 12 major categories using the International Classification of Childhood Cancers (ICCC). For boys and girls (ages 0-14), lymphoid leukemia is the leading type of cancer diagnosed (Figure 25). In contrast, Hodgkins lymphoma is the leading cancer in adolescents (ages 15-19) (Figure 26). When considering race and ethnicity, the highest total childhood cancer incidence rates are seen among non-Hispanic whites followed by Hispanics (Table 28). However, for the leading childhood cancer (lymphoid leukemia), Hispanic children have an incidence rate that is 30% higher than non-Hispanic white children. A similar pattern of highest total cancer incidence rates in non-Hispanic whites and Hispanic is also seen in adolescents (Table 29). In contrast to children, non-Hispanic adolescents have the highest incidence of Hodgkins lymphoma. Hispanic adolescents have the highest rates for gonad germ-cell tumors (including the testes) and lymphoid leukemia, the second and third leading cancers, respectively. Contrary to what is seen in black adults, black children and adolescents compared with non-Hispanic whites and Hispanics have the lowest overall cancer incidence rates (Tables 28 and 29).

→

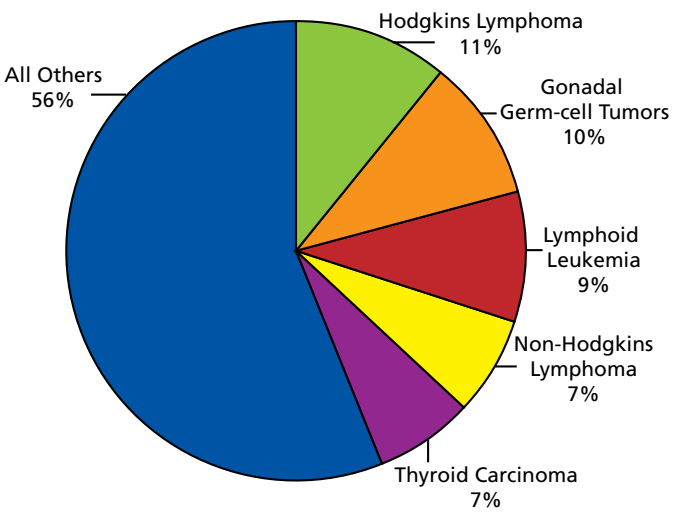
Figure 25. Five Leading Cancers in Children, Ages 0-14, Texas, 2001-2005



Five Leading Cancer in Children, Ages 0-14, Texas, 2001-2005	Count
Lymphoid Leukemia	1,028
Astrocytoma	390
Neuroblastoma & Ganglioneuroblastoma	289
Nephroblastoma & Other Nonepithelial Renal Tumors	212
Acute Myeloid Leukemia	190
All Others	2,027
Total Cases	**4,136**

Note: Number of cases is a five-year total.
Percentages are based on unrounded counts and totals.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008.

Figure 26. Five Leading Cancers in Adolescents, Ages 15-19, Texas, 2001-2005



Five Leading Cancers in Adolescents, Ages 15-19, Texas, 2001-2005	Count
Hodgkins Lymphoma	215
Gonadal Germ-cell Tumors	200
Lymphoid Leukemia	166
Non-Hodgkins Lymphoma	127
Thyroid Carcinoma	127
All Others	1,087
Total Cases	**1,922**

Note: Number of cases is a 5-year total. Percentages are based on unrounded counts and totals.
Source: Texas Cancer Registry, 1995-2005 Incidence based on 2008 NPCR-CSS Submission, 1-31-2008.

Over the past three decades, great strides have been made in the treatment of children with cancer, resulting in vastly improved survival and reduced mortality. Nationwide, mortality rates from all childhood cancers combined decreased steadily from 1975-2004.[3] The overall 5-year relative survival for total childhood cancers diagnosed before age 15 has risen to 80% (Figure 27). These improvements in survival have been seen in all major childhood cancers. The greatest impact in these positive trends has been from dramatic improvement in survival from leukemia (5-year relative survival of 82% for 1996-2004), which accounts for one fourth of all cancers in children under age 15. Survival among adolescents has improved over this same time period and has also reached 80% for all cancers combined (Figure 28). In contrast to children, the 5-year relative survival of leukemia in adolescents is only 51%. Improvement in survival among young adults (those 20-29 years) is also not as favorable as that seen for children.[26] Clinical trials have played a significant role in the dramatic improvement in childhood cancer treatment and cure rates in the last 30 years. Children participate in clinical trials more often than adolescents and young adults.[27]

Table 28. Three Leading Childhood Cancer Sites by Race and Ethnicity, Texas, 2001-2005

	Lymphoid Leukemia		Astrocytoma		Neuroblastoma and Ganglioneuroblastoma		Total Childhood Cancers	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Non-Hispanic White	375	36.0	203	19.5	146	13.9	1,707	163.2
Hispanic	545	46.8	130	11.6	100	7.7	1,864	161.0
Black	64	18.8	40	11.8	33	9.6	394	115.1
Asian/Pacific Islander	22	26.4	7	8.2	4	4.5	85	103.3
All Races	**1,028**	**39.3**	**390**	**15.2**	**289**	**10.5**	**4,150**	**158.7**

Note: Number of cases is a five-year total.
Childhood cancer sites are among children 0-14 years old.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Children of other and unknown race are included in the All Races total.
*Rates are per 1,000,000 and age-adjusted to the 2000 U.S. standard population.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

Table 29. Three Leading Adolescent Cancer Sites by Race and Ethnicity, Texas, 2001-2005

	Hodgkins Lymphoma		Gonadal Germ-cell Tumors		Lymphoid Leukemia		Total Adolescent Cancers	
	Cases	Rate*	Cases	Rate*	Cases	Rate*	Cases	Rate*
Non-Hispanic White	114	30.3	76	20.2	62	16.5	908	241.2
Hispanic	69	21.5	114	35.6	91	28.4	678	211.7
Black	27	24.0	4	3.6	7	6.2	158	140.4
Asian/Pacific Islander	4	16.1	3	12.1	2	8.1	29	116.9
All Races	**215**	**25.9**	**200**	**24.1**	**166**	**20.0**	**1,805**	**217.2**

Note: Number of cases is a five-year total.
Adolescent cancer sites are among children 15-19 years old.
Hispanic ethnicity is derived from the NAACCR Hispanic Identification Algorithm (NHIA) and may be of any race, thus categories are not mutually exclusive.
Children of other and unknown race are included in the All Races total.
*Rates are per 1,000,000 and age-adjusted to the 2000 U.S. standard population.
Source: Texas Department of State Health Services, Cancer Epidemiology and Surveillance Branch, Texas Cancer Registry, 1995-2005 Incidence, Based on 2008 NPCR-CSS Submission, 1-31-2008.

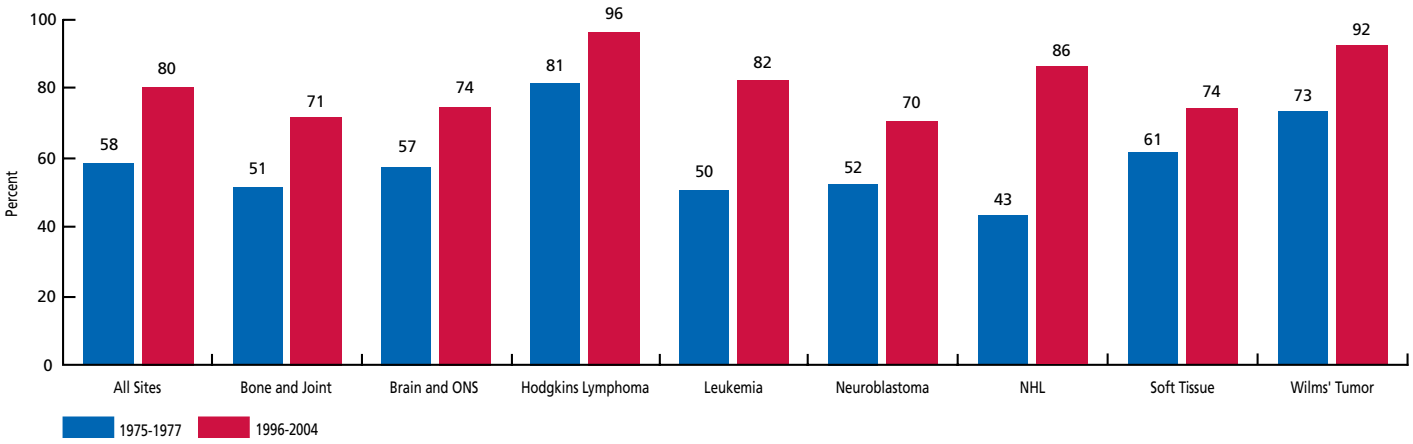
Clinical Trials and Why They Are Important

In cancer research, a clinical trial is a study conducted to evaluate new treatment or prevention methods. Each study is designed to answer scientific questions and to find new and safer ways to treat cancer patients. The search for good cancer treatment begins with basic research in laboratory and animal studies and, if successful, leads to research with patients.

Advances in medicine and science result from new ideas and approaches developed through research. Patients participating in clinical trials provide valuable information concerning the safety and effectiveness of new treatments or preventive strategies. New treatments are carefully studied first in the laboratory. If proven to be safe and effective, they are then made available to all patients.

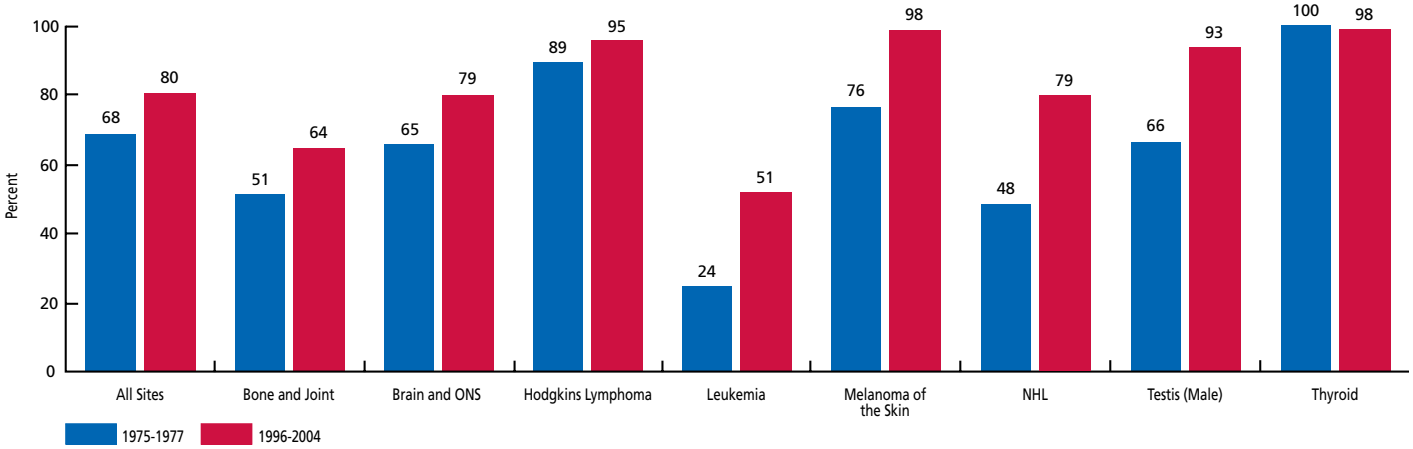
Information about specific trials and how to access them can be obtained by calling the American Cancer Society at **1-800-227-2345** or the National Cancer Institute's Cancer Information Service at **1-800-4-CANCER**. Both organizations can also be reached through their websites at *www.cancer.org* or *www.cancer.gov/clinicaltrials*.

Figure 27. National Trends in 5-Year Relative Survival Among Children, 0-14 Years of Age, 1975-1977 and 1996-2004



NHL = Non-Hodgkins lymphoma; ONS = Other nervous system
Source: Seer Cancer Statistics Review 1975-2005, National Cancer Institute.

Figure 28. National Trends in 5-Year Relative Survival Among Adolescents, 15-19 Years of Age, 1975-1977 and 1996-2004



NHL = Non-Hodgkins lymphoma; ONS = Other nervous system
Source: Seer Cancer Statistics Review 1975-2005, National Cancer Institute.

Nutrition, Physical Activity, Obesity and Cancer

Approximately one third of cancer deaths that occur in the United States each year are related to factors such as nutrition and physical activity, including obesity. For most Americans who do not use tobacco, dietary choices and physical activity are the most important modifiable cancer risk factors. Cancer risk can be reduced by an overall nutrition plan that includes mostly plant foods (fruits, vegetables, grains, and beans) and a balance between food intake and physical activity. Physical activity also promotes overall health and can help protect against some cancers, including colon cancer and breast cancer.

Recommendations for Individual Choices

1. Maintain a healthy weight throughout life.
   - Balance caloric intake with physical activity.
   - Avoid excess weight gain throughout life.
   - Achieve and maintain a healthy weight if currently overweight or obese.
2. Adopt a physically active lifestyle.
   - Adults: Engage in at least 30 minutes of moderate to vigorous physical activity, in addition to usual activities, on 5 or more days of the week.
   - Children and adolescents: Engage in at least 60 minutes per day of moderate to vigorous physical activity at least 5 days per week.
3. Consume a healthy diet with an emphasis on plant sources.
   - Choose foods and beverages in amounts that help achieve and maintain a healthy weight.
   - Eat 5 or more servings of vegetables and fruit each day.
   - Choose whole grains in preference to processed (refined) grains.
   - Limit consumption of processed and red meats.
4. If you drink alcoholic beverages, limit consumption.
   - People who drink alcohol should limit their intake to no more than 2 drinks per day for men and 1 drink a day for women.

Evidence indicates that although inherited genes do influence cancer risk, most of the variation in cancer risk across populations is because of behavioral factors such as cigarette smoking, certain dietary patterns, physical activity and weight control. In the United States, being overweight and obese contribute to 14% to 20% of all cancer-related mortality. Being overweight and obese are clearly associated with increased risk for developing many cancers, including cancers of the breast (in postmenopausal women), colon, endometrium, and kidney, and adenocarcinoma of the esophagus. Evidence is highly suggestive that obesity also increases risk for cancers of the pancreas, gallbladder, thyroid, ovary, and cervix, as well as for myeloma, Hodgkins lymphoma, and aggressive prostate cancer. The best way to achieve a healthy body weight is to balance energy intake (food intake) with energy expenditure (metabolism and physical activity). Excess body fat can be reduced by restricting caloric intake and increasing physical activity.

Unfortunately, Texans are far from complying with the American Cancer Society recommendations on nutrition, physical activity, and weight control (Table 30). Only one in four adults interviewed as part of the 2007 Behavioral Risk Factor Surveillance System reported eating fruits and vegetables 5 or more times per day. The percentage was lowest among men, Hispanics and those with low income and less than a high-school education. In addition to lacking proper nutrition, few Texans are complying with recommendations for daily physical activity or even participating in leisure-time physical activity. The increasing number of overweight Texans is related to poor nutritional habits and physical inactivity. Based on height-to-weight measures (known as body mass index or BMI), 66% of Texas adults were considered overweight; and three fourths of blacks were considered overweight (Table 30).

Many youth in Texas also are at risk of cancer because of inadequate intake of fruits and vegetables, lower- than-recommended-physical-activity levels, increased time spent watching television and higher than recommended body weights for height (Table 31). Of Texas high school students,

Table 30. Prevalence of Adults (Ages 18 Years and Older) Who Eat Fruits and Vegetables 5 or More Times per Day, Who Have No Leisure-Time Physical Activity, and Who Are Overweight, Texas, 2007

	Eating Fruits and Vegetables 5 or More Times per Day Percentage	No Leisure-Time Physical Activity Percentage	Overweight* Percentage
Total	**25.2**	**28.3**	**65.7**
Sex			
Male	22.2	25.5	71.5
Female	28.1	31.0	59.8
Race and Ethnicity			
Non-Hispanic White	26.6	23.5	62.9
Black	24.3	33.7	75.3
Hispanic	23.1	34.3	71.4
Other	24.8	29.0	45.6
Low Education**	20.2	49.2	69.8
Low Income***	22.3	42.5	69.1

* Overweight defined as a body mass index of 25 kg/m^2 or greater.
** Adults 18 years of age and over with less than a high school diploma.
***Adults 18 years of age and over that have a total household income of less than $25,000.
Note: All reported rates are weighted for Texas demographics and the probability of selection.
Source: Texas Behavioral Risk Factor Surveillance System Dataset, Statewide BRFSS Survey, 2007.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

less than half report participating in physical activity and almost 60% watch television 3 or more hours on a school day, 16% are overweight and another 16% are at risk of becoming overweight. Hispanic high-school students had the highest prevalence of being overweight and also exercised least; and black youths were at greatest risk of becoming overweight.

Recommendation for Community Action

Individual choices about diet and physical activity are strongly affected by the surrounding environment, and thus the ACS guidelines include an explicit Recommendation for Community Action. Public, private, and community organizations should work to create social and physical environments that support the adoption and maintenance of healthy nutrition and physical activity behaviors.

- Increase access to healthy foods in schools, workplaces, and communities.
- Provide safe, enjoyable, and accessible environments for physical activity in schools and for transportation and recreation in communities.

Research tells us that healthy behavior is based not only on knowledge, but also on attitudes and skills developed early in life. It is these formative years that offer parents, the community, and institutions a valuable opportunity to influence the development of healthy behaviors in children. Quality school health programs are one of the most effective ways to reach the close to 4 million children who attend Texas schools to instill lifelong health habits that protect against cancer. To reinforce this healthy behavior, Texas has established Partnership for a Healthy Texas, which focuses prevention efforts in schools.

Portions of the above have been excerpted from *Cancer Facts & Figures 2008*, American Cancer Society, Inc., Atlanta, GA. Full text is available at *www.cancer.org*

Partnership for a Healthy Texas

Texans are some of the unhealthiest people in the nation. Their health status is one of the worst related to obesity, Type II diabetes, cardiovascular disease and tobacco use. Texas is addressing these issues by making prevention a priority and focusing prevention efforts on schools as part of coordinated school health (CSH) programs.

A model initiative has been established in which the Texas Education Agency, Texas Department of State Health Services and Texas Department of Agriculture collaborate and coordinate efforts to build capacity within school systems and communities to support health improvements of youth throughout the state. With the support of Partnership for a Healthy Texas, major strides are being made to focus on the following primary goals through the 20 Region Education Service Centers:

- Increasing skills and competencies among school-district personnel and community partners to facilitate the implementation of effective CSH policies and evidence-based practices;
- Providing increased access to tools and resources that will enhance the implementation of model CSH policies and practices; and
- Developing and strengthening state and regional partnerships that will increase awareness, support and implementation of CSH policies and practices.

Table 31. Nutrition, Physical Activity, and Overweight Status, High School Students, Texas, 2007

	Eating Fruits and Vegetables 5 or More Times per Day* Percent	Participating in Physical Activity** Percent	Watching TV 3 or more hours per school day Percent	At Risk for Becoming Overweight*** Percent	Overweight**** Percent
Total High School	**17**	**41**	**58**	**16**	**16**
Sex					
Male	20	45	64	16	20
Female	15	36	52	16	12
Race and Ethnicity					
Non-Hispanic White	15	42	58	13	14
Black	20	54	73	20	15
Hispanic	18	34	52	17	19
Other	29	44	52	10	15
Grade Level					
9th	19	53	61	18	16
10th	19	43	60	16	15
11th	15	32	56	11	17
12th	15	27	52	17	16

* During the past 7 days.
** Physically active for a total of at least 60 minutes or more per day on 5 or more of the past 7 days.
*** Students who were at or above the 85th percentile but below the 95th percentile for body mass index by age and sex.
****Students who were at or above the 95th percentile for body mass index by age and sex.
Notes: All reported rates are weighted for Texas demographics and the probability of selection. Percentages are rounded.
Source: Texas Youth Risk Behavioral Surveillance System Dataset, Statewide BRFSS Survey, 2007.
Prepared by: Community Assessment Team, Center for Health Statistics, Texas Department of State Health Services.

The Economic Cost of Obesity in Texas

If current trends continue, 20 million or 75% of Texas adults may be overweight or obese by the year 2040; and the cost to Texas could quadruple from $10.5 billion in 2001 to as much as $39 billion in 2040.* In 2005, obesity cost Texas businesses an estimated $3.3 billion. This figure includes the cost of health care, absenteeism, decreased productivity and disability.**

*Texas Department of State Health Services. *The Burden of Overweight and Obesity in Texas, 2000-2040*, 2004
**Texas Comptroller of Public Accounts. *Counting Costs and Calories: Measuring the Cost of Obesity to Texas Employers*, 2007.

Environmental Cancer Risks

Two major classes of factors influence the incidence of cancer: hereditary factors and acquired (environmental) factors. Hereditary factors come from our parents and cannot be modified. Environmental factors are potentially modifiable. They include tobacco use (including secondhand smoke); poor nutrition; inactivity; obesity; certain infectious agents; certain medical treatments; sunlight; cancer-causing agents that occur naturally in food; cancer-causing agents in the workplace; and cancer-causing agents that exist as pollutants in our air, water, and soil.

Environmental (as opposed to hereditary) factors account for an estimated 75% to 80% of cancer cases and deaths in the United States. Exposure to carcinogenic agents in occupational, community, and other settings is thought to account for a relatively small percentage of cancer deaths, about 4% from occupational exposures and 2% from environmental pollutants (man-made and naturally occurring). Although the estimated percentage of cancers related to occupational and environmental carcinogens is small compared with the cancer burden from tobacco smoking (30%) and the combination of nutrition, physical activity, and obesity (35%), the relationship between such agents and cancer is important for several reasons.

First, even a small percentage of cancers can represent many deaths; 6% of cancer deaths in the United States each year corresponds to approximately 33,600 deaths. Second, the burden of exposure to occupational and environmental carcinogens is borne disproportionately by lower-income workers and communities, contributing to disparities in the cancer burden across the population. Third, although much is known about the relationship between occupational and environmental exposure and cancer, some important research questions remain. These include the role of exposures to certain classes of chemicals (such as hormonally active agents) during critical periods of human development and the potential for pollutants to interact with each other, as well as with genetic and acquired factors.

Various infectious agents also contribute to cancer causation, and many of these are now targets for cancer prevention. Many strains of HPV cause cervical cancer and some are responsible for a subset of head and neck cancers. Hepatitis B and C are both implicated as causes of liver carcinoma. Epstein-Barr virus has been associated with the development of various malignancies. Helicobacter pylori infection can cause gastric cancer and lymphoma. Human immunodeficiency virus (HIV) is associated with many malignancies such as Kaposi's sarcoma and lymphoma.

Primary or secondary prevention by vaccination or effective treatments for these agents is another target for cancer prevention. Specifically, vaccines have been developed that target many strains of HPV that are known to cause cervical cancer. Hepatitis B vaccine is a routine part of a standard vaccination schedule. H. pylori can be treated effectively, and there are many treatments to help control HIV infection.

How Carcinogens Are Identified

The term carcinogen refers to exposures that can increase the incidence of malignant tumors (cancer).

The term can apply to a single chemical such as benzene; fibrous minerals such as asbestos; metals and physical agents such as x-rays or ultraviolet light; or exposures linked to specific occupations or industries (e.g., nickel refining). Carcinogens are usually identified on the basis of epidemiological studies or by testing in animals. Studies of occupational groups (cohorts) have played an important role in understanding many chemical carcinogens – as well as radiation – because exposures are often higher among workers, who can be followed for long periods of time. Some information has also come from studies of persons exposed to carcinogens during medical treatments (such as radiation and estrogen), as well as from studies conducted among individuals who experienced large, short-term exposure to a chemical or physical agent because of an accidental or intentional release (such as survivors of the atomic bomb explosions of Hiroshima and Nagasaki).

Studies have examined the relationship between exposure to potentially carcinogenic substances in the general population and cancer risk; but such studies are difficult, often because of uncertainties about exposure and the challenge of long-term follow-up. Moreover, relying upon epidemiological information to determine cancer risk does not fulfill the public-health goal of prevention, since by the time the increased risk is detected, a large number of people may have been exposed. Thus, for the past 40 years, the United States and many other countries have developed methods for identifying carcinogens through animal testing using the "gold standard" of a 2-year or lifetime bioassay in rodents. This test is expensive and time-consuming, but it can provide information about potential carcinogens so that human exposure can be reduced or eliminated.

Many substances that are carcinogenic in rodent bioassays have not been adequately studied in humans, usually because an acceptable study population has not been identified. Among substances that have proven carcinogenic in humans, all have shown positive results when tested in well-conducted 2-year bioassays.[28] Moreover, between 25% and 30% of established human carcinogens were first identified through animal bioassays. Since animal tests necessarily use high-dose exposures, human risk assessment usually requires extrapolation of the exposure-response relationship observed in rodent bioassays to predict effects in humans at lower doses. Typically, regulatory agencies in the United States and abroad have adopted the default assumption that no threshold level (level below which there is no increase in risk) of exposure exists for carcinogenesis.

Evaluation of Carcinogens

The National Toxicology Program (NTP) plays an important role in the identification and evaluation of carcinogens in the United States, and the International Agency for Research on Cancer (IARC) plays a similar role internationally. The NTP was established in 1978 to coordinate toxicology testing programs within the federal government, including tests for carcinogenicity.

The NTP is also responsible for producing the Report on Carcinogens, an informational scientific and public health document that identifies agents, substances, mixtures, or exposure circumstances that may increase the risk of developing cancer.[29] For a list of substances listed in the 11th Report on Carcinogens as known or reasonably anticipated to be human carcinogens, see *http://ntp.niehs.nih.gov/ntp/roc/toc11.html*.

The IARC is a branch of the World Health Organization that regularly convenes scientific consensus groups to evaluate potential carcinogens. After reviewing published data from laboratory, animal, and human research, these committees reach consensus about whether the evidence should be designated "sufficient," "limited," or "inadequate" to conclude that the substance is a carcinogen. For a list of substances that have been reviewed by the IARC monograph program, visit *www-cie.iarc.fr/*. The American Cancer Society does not have a formal program to review and evaluate carcinogens. However, information on selected topics can be found at *www.cancer.org*.

Although the relatively small risks associated with low-level exposure to carcinogens in air, food, or water are difficult to detect in epidemiological studies, scientific and regulatory bodies throughout the world have accepted the principle that it is reasonable and prudent to reduce human exposure to substances shown to be carcinogenic at higher levels of exposure.

Although much public concern about the influence of man-made pesticides and industrial chemicals has focused on cancer, pollution may adversely affect the health of humans and ecosystems in many other ways. Research to understand the short- and long-term impact of environmental pollutants on a broad range of outcomes, as well as regulatory actions to reduce exposure to recognized hazards, has contributed to the protection of the public and the preservation of the environment for future generations. It is important that this progress be recognized and sustained.

Portions of the above are excerpted from *Cancer Facts & Figures 2008*, American Cancer Society, Inc., Atlanta, GA. Full text is available on the American Cancer Society Web site *www.cancer.org*

American Cancer Society Screening Guidelines for Early Detection of Cancer in Asymptomatic People[30]

Site	Recommendation
Breast (Female)	Yearly mammograms are recommended starting at age 40. The age at which screening should be stopped should be individualized by considering the potential risks and benefits of screening in the context of overall health status and longevity. Clinical breast exams (CBE) should be part of a periodic health exam about every 3 years for women in their 20s and 30s and every year for women 40 and older. Women should know how their breasts normally feel and report any breast changes promptly to their health care providers. Breast self-exam is an option for women starting in their 20s. A screening magnetic resonance imaging (MRI) scan is recommended for women with approximately 20%-25% or greater lifetime risk of breast cancer, including women with a strong family history of breast or ovarian cancer and women who were treated for Hodgkins disease.
Colon and Rectum	Beginning at age 50, men and women at average risk should begin screening with one of the examination schedules below: *Tests that detect adenomatous polyps and cancer:* ■ A flexible sigmoidoscopy every 5 years ■ A colonoscopy every 10 years ■ A double-contrast barium enema every 5 years ■ Computed Tomographic (CT) colonography every 5 years *Tests that primarily detect cancer:* ■ A guaiac-based fecal occult blood test (gFOBT) or fecal immunochemical test (FIT), with high test sensitivity every year ■ Stool DNA test (interval uncertain) Individuals with a personal or family history of colorectal cancer or adenomas, inflammatory bowel disease, or high-risk genetic syndromes should continue to follow the most recent recommendations for individuals at increased or high risk.
Prostate	The PSA test and the DRE should be offered annually, beginning at age 50, to men who have a life expectancy of at least 10 years. Men at high risk (black men and men with a strong family history of 1 or more first-degree relatives diagnosed with prostate cancer at an early age) should begin testing at age 45. For both men at average risk and high risk, information should be provided about what is known and what is uncertain about the benefits and limitations of early detection and treatment of prostate cancer so that patients can make an informed decision about testing.
Uterus	***Cervix:*** Screening should begin approximately 3 years after a woman begins having vaginal intercourse, but no later than 21 years of age. Screening should be done every year with regular Pap tests or every two years using liquid-based tests. At or after age 30, women who have had 3 normal test results in a row may get screened every 2 to 3 years. Alternatively, cervical cancer screening with HPV DNA testing and conventional or liquid-based cytology could be performed every 3 years. However, doctors may suggest a woman get screened more often if she has certain risk factors, such as HIV infection or a weak immune system. Women aged 70 and older who have had 3 or more consecutive normal Pap tests in the last 10 years may choose to stop cervical cancer screening. Screening after total hysterectomy (with removal of the cervix) is not necessary unless the surgery was done as a treatment for cervical cancer. ***Endometrium:*** The American Cancer Society recommends that at the time of menopause all women should be informed about the risks and symptoms of endometrial cancer and strongly encouraged to report any unexpected bleeding or spotting to their physicians. Annual screening for endometrial cancer with endometrial biopsy beginning at age 35 should be offered to women with or at risk for hereditary nonpolyposis colon cancer (HNPCC).
Cancer-related Checkup	For individuals undergoing periodic health examinations, a cancer-related checkup should include health counseling about tobacco, sun exposure, diet and nutrition, sexual practices, environmental and occupational exposures and depending on a person's age and gender, might include examinations for cancers of the thyroid, oral cavity, skin, lymph nodes, testes, and ovaries, as well as for some nonmalignant diseases.

American Cancer Society guidelines for early detection are assessed annually in order to identify whether there is new scientific evidence to warrant a re-evaluation of current recommendations. If evidence is sufficiently compelling to consider a change or clarification in a current guideline or the development of a new guideline, a formal procedure is initiated. Guidelines are formally evaluated every 5 years regardless of whether new evidence suggests a change in the existing recommendations. There are 9 steps in this procedure, and these "guidelines for guideline development" were formally established to provide a specific methodology for science and expert judgment to form the underpinnings of specific statements and recommendations from the Society. These procedures constitute a deliberate process to ensure that all Society recommendations have the same methodological and evidence-based process at their core. This process also employs a system for rating strength and consistency of evidence that is similar to that employed by the Agency for Health Care Research and Quality (AHCRQ) and the US Preventive Task Force (USPSTF).

The American Cancer Society, High Plains Division, Inc.

The American Cancer Society (ACS) is the nationwide community-based voluntary health organization dedicated to eliminating cancer as a major health problem by preventing cancer, saving lives, and diminishing suffering from cancer through research, education, advocacy, and service.

With more than two million volunteers nationwide, and an estimated 325,000 in Texas alone, the Society is one of the oldest and largest voluntary health agencies in the United States.

American Cancer Society 2015 Challenge Goals:

- Reduce age-adjusted cancer incidence rates by 25%
- Reduce age-adjusted cancer mortality rates by 50%
- Improve the quality of life for all those touched by cancer

Research

American Cancer Society-funded researchers constantly strive for the next discovery that will change the face of cancer prevention, detection, and treatment. The Society's research program is the nation's largest private, not-for-profit source of funds for scientists studying cancer. More than 40 *Relay For Life* events in Texas and across the High Plains Division have enrolled more than 3,000 people for the Society's Cancer Prevention-3 (CPS-3). This cohort study will further our understanding of facts that cause or prevent cancer.

Education

Knowing the facts about cancer can save lives. With information about both prevention and early detection, individuals can actively participate in the way cancer affects them. The Society strives to reach everyone with lifesaving information through conferences, workshops, audiovisual and print publications, as well as through its Web site, *www.cancer.org* and the National Cancer Information Center (**1-800-227-2345**). This free telephone-based service is staffed by cancer information specialists, 24 hours a day, 7 days a week, and is available for cancer patients, caregivers, family members and the general public who may have cancer-related questions.

Primary cancer prevention means taking the necessary precautions to prevent the occurrence of cancer. Prevention programs are designed to help adults and children make healthy lifestyle choices that continue throughout life. *The Great American Health Challenge*® is the Society's newest comprehensive, year-round effort to encourage consumers to take control of their health and adopt healthy lifestyle behaviors that reduce cancer risk while adding enjoyment and pleasure to one's life. *The Challenge* focuses on four areas of healthfulness: check, move, nourish, and quit and can be accessed at *www.cancer.org/GreatAmericans*.

The Society offers additional on-site and web-based training and support for parents, teachers, and community leaders devoted to school health improvement via *www.cancer.org/schoolhealth*; web-based interventions to support employee health promotion in the workplace at *www.fightcancer.org*; and a toll-free *Quitline*® telephone smoking cessation counseling service (**1-877-YES-QUIT**).

In addition to taking proactive steps to help prevent the disease, it's important to know how cancer is found and what screening options are available and appropriate. Finding cancer at the earliest stage possible gives the patient the greatest chance of survival. The Society seeks to provide the public and health care professionals with the latest cancer information and education related to the early detection of cancer. Age and gender appropriate cancer screening guidelines are available on page 44.

Patient Services

Because cancer takes a toll on the person diagnosed as well as family and friends, the Society offers support and service programs to try to lessen the impact. The Society can provide information, day-to-day help, and emotional support. Programs cover a wide range of needs, including the following:

- *Reach to Recovery*® provides trained volunteer survivors who offer information and support to patients before, during and after breast cancer treatment.
- *Man to Man*® is a cancer education and support program for men who have had prostate cancer.

→

Summary of American Cancer Society Research Grants in Texas by Institution as of May 2008

Institution	# Grants	Amount
Baylor College of Medicine	14	$7,502,500
Dell Children's Medical Center of Central Texas	1	$12,000
The University of Texas M. D. Anderson Cancer Center	17	$10,946,166
Texas A & M University	2	$1,456,000
The University of Texas Health Science Center, San Antonio	5	$3,068,000
The University of Texas Medical Branch, Galveston	3	$1,227,500
The University of Texas Southwestern Medical Center, Dallas	7	$3,066.500
The University of Texas, Austin	6	$3,736,000
Total	**55**	**$31,014,666**

- *I Can Cope*® is an educational program for people facing cancer, either personally or as a caregiver. The program offers reliable information, peer support, and practical coping skills at select locations and online.
- *Camp Discovery* is a week-long, summer camp experience in the Texas hill country for children ages 7-15 who have or have had cancer. It is specially equipped to handle the specific needs of children who are in treatment.
- *Road to Recovery*® is the Society's transportation program. Trained volunteers provide transportation to and from cancer-related treatment.
- *The Guestroom Program* provides temporary housing for cancer patients who must travel for outpatient treatment and checkups. This voluntary service is limited to cities with agreements between the American Cancer Society and participating local hotels.
- *Look Good...Feel Better*® is a free community-based national service that teaches female cancer patients beauty techniques to help restore their appearance and self-image during chemotherapy and radiation treatments.
- Support Groups are offered in many Texas communities, where the Society collaborates with health professionals in local hospitals to facilitate cancer support groups for cancer patients and their caregivers.
- Childhood scholarships are available to support undergraduate education or vocational trade school for students who have survived any type of childhood cancer.
- *Relay For Life*® is an event at which cancer survivor celebrations are held in conjunction with the Society's signature walk that raises money to support the Society's programs and services in over 300 Texas communities.

Advocacy

Cancer is a political issue as legislative efforts have the power to significantly impact research and the prevention, detection, and treatment of the disease. Policymakers at all levels of government make decisions every day that affect the lives of 12 million cancer survivors, their families, and countless people who will be diagnosed in the future. The Society's advocacy priorities are:

- Discouraging the use, sale, distribution, marketing, and advertising of tobacco products, particularly to youth
- Improving access to health care for everyone, particularly poor and underserved Americans
- Increasing funding for cancer prevention and research

During a 2006 special session, the American Cancer Society and its partner organizations succeeded in advocating for a $1 increase in the Texas cigarette tax, which raised the overall tax to $1.41 per pack. It is anticipated that the $1 increase will convince more than 143,000 adult smokers to quit, decrease youth smoking by more than 18%, save more than 128,000 Texans from smoking-related deaths, and prevent more than 284,000 Texas children from ever starting to smoke. The tax became effective in January 2007 and caused a significant increase in the number of smokers calling the American Cancer Society's Quitline (**1-800-QUIT-NOW**).

The Cancer Prevention and Research Institute of Texas was created during the 2007 regular session and voters then approved $3 billion in funding for the institute over the next 10 years. The funding will provide $270 million a year for cancer research and another $30 million toward cancer prevention programs. The Society mobilized an extensive volunteer network and dedicated significant support to the passage of this initiative.

Also in the 2007 session, the legislature set aside $21.5 million for the next two years to expand the state's tobacco prevention and cessation program, which was previously funded at only $10 million and limited to parts of East Texas. The Texas Breast and Cervical Cancer Services program, which provides free breast and cervical screening and treatment services to low income women, received new funding — $5.2 million for screening and $14 million for treatment during the next biennium. Texas elementary and middle school students will now be required to participate in daily exercise and students in all grades will undergo fitness assessments each year. The Texas Cancer Registry will continue to receive appropriate funding to help maintain gold standard status.

The Society is committed to advocacy as a significant way to impact cancer research and the prevention, detection, and treatment of cancer. Today, more than ever, advocacy provides an avenue for reducing the incidence and mortality of cancer. *ACS Cancer Action Network* (CAN) is the non-profit, non-partisan sister advocacy organization of the ACS. *ACS CAN* works to encourage lawmakers, candidates and government officials to support laws and policies that will make cancer a top national priority. This network also gives the public power to fight cancer. For more information, visit *www.acscan.org*.

Working with Systems to Reach American Cancer Society 2015 Goals

Building strong collaborations with systems will enable the American Cancer Society to reach many more people with information about prevention and early detection techniques; raise awareness of resources available if they or their family members are diagnosed with cancer; and provide opportunities for volunteering and financially supporting the Society.

The American Cancer Society, High Plains Division is currently focusing on three priority systems with which we must strengthen our collaborations to reach our 2015 goals.

1. Health and Medical
2. Workplace
3. Faith-based and Community

The Society can serve as the catalyst to create "value added" benefit throughout all aspects of the system so that cancer prevention, detection and survivorship becomes integrated throughout and is just one of the many things the system itself accomplishes.

Texas Department of State Health Services

The Texas Department of State Health Services (DSHS) promotes optimal health for individuals and communities while providing effective health, mental health and substance abuse services to Texans. Cancer and data-related programs include the following:

Texas Cancer Registry

The Texas Cancer Registry (TCR) is a statewide population-based registry that serves as the foundation for Texas cancer prevention and control. Its overall goal is to collect timely, complete, and accurate data on all cancer cases newly diagnosed in the State. The TCR collects information such as the types of cancers that occur and their locations within the body, the extent of cancer at the time of diagnosis (disease stage), and the kinds of treatment that patients receive. These data are reported to the TCR from various medical facilities, including hospitals, cancer treatment centers, and pathology laboratories.

Data collected, maintained, and provided by the TCR are used to:

- Describe the burden of cancer in Texas
- Provide information for a national cancer incidence database
- Monitor cancer trends over time so that appropriate and timely interventions are taken
- Guide planning and evaluation of cancer control programs (e.g., determine whether prevention, screening, and treatment efforts are making a difference)
- Help set priorities for allocating health resources
- Conduct and advance research related to the etiology, prevention, and treatment of cancer
- Compete for external cancer research dollars
- Investigate public concerns about cancer caused by suspected environmental or other factors
- Identify issues related to cancer survival
- Ultimately save lives

TCR data are available in a variety of publications and formats at the state, regional, and local community levels. To review or request TCR data, visit *www.dshs.state.tx.us/tcr/* or *http://www.cancer-rates.info/tx*, call **1-800-252-8059** (in Texas), **512-458-7523** (outside of Texas), or e-mail *CancerData@exch.dshs.state.tx.us*.

Center for Health Statistics

The Center for Health Statistics (CHS) is one of the DSHS' focal points for analysis and dissemination of information that is used to improve public health in Texas.

- The CHS Health Information Resources Division collects, analyzes, and disseminates health information for public health decision-making in Texas. The Health Research and Methods Team provides Geographic Information Support and technical expertise on geocoding, mapping and spatial analysis. The Community Assessment Team manages and administers Behavioral Risk Factor surveys and provides expertise in health data survey, community assessment and outcomes research. The Data Dissemination Team coordinates and maintains CHS web resources, and the Data Management Team analyzes and reports vital statistics data and provides comprehensive and prompt responses to data requests.
- The Health Provider Resources Division is a source for data on Texas health providers. The Health Professions Resource Center collects, analyzes and publishes employment, demographic and supply trends for health professionals. The Hospital Data Team collects and reports financial, utilization and DSHS program information from over 500 Texas acute care and psychiatric hospitals, as well as hospital charity care and community benefits data. The Nursing Workforce Data Team researches data needed to address current and future nurse workforce shortages in Texas and works with the Nursing Workforce Data Advisory Committee of the Statewide Health Coordinating Council.
- The Health Care Data Collection Program collects and reports on inpatient discharge data from hospitals and data from HMOs to enable individuals to make informed health-care decisions.

Texas Comprehensive Cancer Control Program

Comprehensive Cancer Control is a collaborative process through which a community pools resources to reduce the burden of cancer that results in:

- Risk reduction
- Early detection
- Better treatment
- Enhanced survivorship

The Texas DSHS in collaboration with the Texas Cancer Council (now the new Cancer Prevention and Research Institute of Texas) receives funding from the US Centers for Disease Control and Prevention to implement comprehensive cancer control in Texas.

The goals of the Program are to expand collaborative efforts, increase the use of the *Texas Cancer Plan*, develop a data-driven process for prioritizing the *Texas Cancer Plan* and to disseminate the information available to local communities. The program reaches its goals through two components:

→

Coalition Component

The Program provides administrative support to the Texas Comprehensive Cancer Control Coalition (Coalition). The Coalition's mission is to promote, enhance and expand all public and private partners' efforts to implement the *Texas Cancer Plan*. The aim of the Coalition is to advance cooperative efforts that focus on the goals of the *Texas Cancer Plan*: cancer prevention, early detection and treatment; professional education; cancer data acquisition and utilization; and survivorship. For more information on the Coalition and its members please visit *www.texascancercoalition.org*.

Regional Component

The purpose of the regional component is to disseminate the concepts of comprehensive cancer control to local communities and to assist communities with local implementation of the *Texas Cancer Plan*. This is accomplished by having program staff work with DSHS regional staff and local stakeholders to establish local comprehensive cancer control coalitions in communities that are interested and able to commence cancer control efforts. Currently community coalitions are supported by Program staff in Amarillo, Del Rio, Lubbock, Tyler, and Wichita Falls.

For more information on the Texas Comprehensive Cancer Control Program please visit *www.dshs.state.tx.us/tcccp*.

Breast and Cervical Cancer Services

The purpose of the Breast and Cervical Cancer Services (BCCS) program is to reduce premature mortality caused by breast and cervical cancer. The Texas DSHS works in partnership with many diverse organizations across the state to make cancer screening services accessible to Texans. Cancer screening services are available at more than 300 locations across Texas. For information on where to find the nearest clinic site, visit the BCCS web site at *http://www.dshs.state.tx.us/bcccs/locator.shtm*.

Women who are eligible to receive breast and cervical cancer services must have incomes at or below 200% of the federal poverty level and have no other source of payment. Women age 50-64 are a priority for breast cancer services. Women age 18-64 who have never or rarely (not within the previous 5 years) been screened for cervical cancer are a priority for cervical cancer services. Services available include:

- Breast examinations by a qualified health care provider; mammograms; and various diagnostic procedures
- Pap tests; colposcopy; and colposcopy with biopsy
- Client education and public information on breast and cervical cancer

Women who have been diagnosed with a qualifying breast or cervical cancer by either a BCCS contractor or another healthcare provider, may be eligible for a special Medicaid for Breast and Cervical Cancer program that provides access to cancer treatment services at no cost through full Medicaid benefits. BCCS contractors are responsible for assisting women with the eligibility process and in completing application forms. For more information on the Medicaid for Breast and Cervical Cancer program, visit the following web address: *http://www.dshs.state.tx.us/bcccs/treatment.shtm*.

For more information on the BCCS program, call **2-1-1** or **(512) 458-7791**.

Tobacco Prevention and Control Program

The Tobacco Prevention and Control Program provides comprehensive tobacco prevention and control activities at various levels statewide. These activities include tobacco prevention education in schools and communities, cessation activities through education and a statewide telephone counseling service. The Program also provides support for enforcement of state and local tobacco laws including a statewide tobacco awareness class, public education through use of media combined with other strategies, receipt of tobacco ingredient lists, monitoring of municipal smoke-free ordinances, a rural smokeless tobacco initiative and evaluation of program outcomes. Using tobacco settlement funding, six tobacco prevention and control coalitions in communities across the state are implementing comprehensive prevention and cessation strategies to address local tobacco problems.

Nutrition, Physical Activity and Obesity Prevention Program

The Texas DSHS Nutrition, Physical Activity, and Obesity Prevention Program (NPAOP) works to reduce the burden of death and diseases related to overweight and obesity in Texas by making health foods and an active lifestyle the easy choice throughout Texas communities. NPAOP bases activities on the most current and proven public health strategies, and then partners with state and local organizations, groups and communities across the state to promote science-based nutrition and physical activity interventions, policies and environmental changes to prevent and control obesity and overweight. Key target areas include: increasing physical activity; increasing consumption of fruits and vegetables; decreasing consumption of high energy-dense foods; decreasing consumption of sugar-sweetened beverages; decreasing television viewing; and increasing breastfeeding initiation, duration, and exclusivity.

Cancer Prevention and Research Institute of Texas

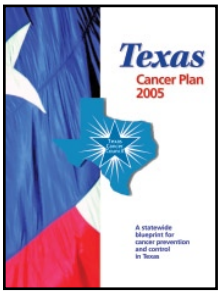
The Texas Cancer Council became the Cancer Prevention and Research Institute of Texas (the Institute) through legislation passed in 2007. The legislation allows the Institute to issue $3 billion in general obligation bonds over 10 years to fund grants for cancer research and prevention. The Institute may invest the research grants strategically in cancer research, clinical trials, and laboratory construction in Texas.

Cancer Prevention & Research Institute of Texas

The Institute is governed by an Oversight Committee consisting of nine members who are appointed by the Governor, the Speaker of the House and the Lieutenant Governor and a representative from the Attorney General's Office and the Comptroller's Office.

The Institute funds programs that focus on cancer awareness, education, and outreach. Institute funds are appropriated by the Texas Legislature and are made available for research and cancer control programs through a competitive process or through direct contract with other state entities. Institute programs address all areas of cancer need, ranging from teaching school children sun safety to enhancing research superiority at Texas institutions of higher education, including attracting other researchers and resources from outside the state.

The *Texas Cancer Plan*



The *Texas Cancer Plan* is a statewide blueprint for cancer prevention and control in Texas. It is a consensus-based, strategic document used by public and private cancer control organizations, and provides a planned, evidence-based approach to reducing the cancer burden in Texas. The *Plan* is recognized in the nation as a model comprehensive cancer plan and addresses the key issues in cancer prevention and control. The *Texas Cancer Plan* is full of data regarding cancer risk factors; prevention strategies; screening guidelines and tests; and incidence, prevalence and mortality for all major types of cancer sites. The goals of the current *Texas Cancer Plan* are as follows:

Goal I: Prevention Information & Services: Texans will have the most current information and the opportunities necessary to reduce their risks for developing cancer.

Goal II: Early Detection & Treatment: Texans will have prompt access to information and services that enable the early detection, diagnosis, treatment and support of cancer.

Goal III: Professional Education & Practice: Texas health care professionals will have up-to-date knowledge and skills about cancer prevention and control and will use them to provide quality prevention, education, screening, diagnostic, treatment and support services.

Goal IV: Cancer Data Acquisition & Utilization: Texans will have comprehensive and responsive cancer data and information systems for planning, implementing and evaluating programs, policies and cancer research.

Goal V: Survivorship: The end of cancer treatment is not the end of the cancer experience. A diagnosis of cancer is the beginning of the survivorship journey. All Texans will have an awareness and understanding of the issues and impacts of survivorship in our state.

The *Texas Cancer Plan* guides all Institute programs and initiatives. Institute staff build programs to address the goals of the *Plan* and approach local and statewide cancer control partners to join in the efforts to leverage all partner efforts. Institute partners also use the *Plan* to determine areas of need in fighting cancer in Texas. Thus, the Institute periodically updates the *Texas Cancer Plan* to keep it current, useful and relevant. The most recent update of the *Plan* was published in December 2004. The next revision will include a goal for research.

Collaboration

The Institute has a track record as a neutral convener of cancer control resources in Texas. It is uniquely able to bring partners together in a multifaceted attack on cancer. The Institute forms partnerships at the local level with nonprofit community health organizations, local ACS units, local health departments, businesses, and community leaders to leverage limited resources to control cancer. At the state level, the Institute partners with the ACS, the Texas DSHS, The University of Texas M. D. Anderson Cancer Center, the Susan G. Komen Foundation, the Lance Armstrong Foundation, and numerous universities and medical centers. Nationally, the Institute collaborates with the CDC, the NCI, and other states to deliver comprehensive approaches to cancer control. Additionally, Institute staff and board members serve on advisory bodies, working committees, and task forces of other cancer-fighting organizations to ensure that efforts are well coordinated and not duplicated, which is vital to optimizing available cancer control resources.

Programs

The Institute establishes its impact on Texas communities through the local initiatives it creates and funds. Institute funds allowed creation of Texas Cancer Information at M. D. Anderson Cancer Center. This web-based cancer resource

→

provides no cost, credible, noncommercial cancer information to Texans, as well as information about local and regional health care providers and facilities where Texans can access cancer treatment.

To ensure that Texas health care professionals will have up-to-date knowledge and skills about cancer prevention and control and will use them to provide quality prevention, education, screening, diagnostic, treatment, and support services, the Institute continues to fund the following initiatives: the *Physician Oncology Education Program*, the *Nurse Oncology Education Program*, the *Dental Oncology Education Program* and the *Female Cancer Screening Education for Nurses in Rural or Medically Underserved Areas of Texas*.

Texans are assured of having prompt access to information and services that enable the early detection, disgnosis, treatment, and support of cancer through our *Asian Cancer Coordination Project* in the Greater Houston Metro area, including Harris, Fort Bend and Brazoria counties. In addition this project increases public awareness of and demand for culturally appropriate cancer education and services to the Asian population.

The need for physical and psychological rehabilitation services to underserved cancer patients, their families and caregivers is provided by *Cancer Foundation for Life Physical Conditioning Program* and *A Physical Rehabilitation Program for Cancer Survivors in Austin*.

The Institute supports a specialty license plate program called *Texans Conquer Cancer* which provides support services to cancer patients and their families. Currently funded under this program are: Cancer Therapy & Research Center (CTRC) - San Antonio; Cancer Care Services - Ft Worth; Light and Salt Association - Houston; Covenant Health System Foundation on behalf of Covenant Joe Arrington Cancer Research and Treatment Center (JACC) - Lubbock; and CHRISTUS Spohn Cancer Center - Corpus Christi.

Because of the Institute, Texas has what may be the nation's first Cancer Nutrition Network. Administered by The University of Texas Medical Branch at Galveston, this innovative program provides web-based, print and face-to-face nutritional information for cancer patients and families who struggle to maintain adequate nutrition during chemotherapy, radiation and treatments. Over the past few years, the project has responded to the needs of cancer survivors by providing additional education on many other survivorship issues.

One more example of the Institute's impact is the *Cancer Risk Reduction Education* program. Implemented by the Texas Cooperative Extension Service of Texas A&M University, this program reaches over 100,000 rural Texans a year with educational programs and materials by working through county extension agents. It provides a weeklong summer technology camp at no cost to the school children who attend. The camp effectively teaches cancer prevention content to students by building their skills in website and media development, using healthy living content. This and all Institute programs include efforts to reach underserved Texans who face geographic, economic, linguistic, and social barriers to cancer prevention and detection services.

For more information on the Cancer Prevention and Research Institute of Texas initiatives or the *Texas Cancer Plan*, call **512-463-3190**.

The Cancer Prevention and Research Institute is charged by the Texas Legislature to:

- Create and expedite innovation in the area of cancer research and in enhancing the potential for a medical or scientific breakthrough in the prevention of cancer and cures for cancer;
- Attract, create, or expand research capabilities of public or private institutions of higher education and other public or private entities that will promote a substantial increase in cancer research and in the creation of high-quality new jobs in this state; and
- Develop and implement the *Texas Cancer Plan*.

Texas Cancer Information

The Texas Cancer Information Web site provides cancer and health information for Texans and all information is free to users.

After more than two decades of providing Texas-specific cancer information on the Web, the Texas Cancer Data Center (TCDC) underwent a design transformation and was renamed Texas Cancer Information, with a new Web address, *www.texascancer.info*.

Texas Cancer Information provides reliable information for patients, caregivers, the general public, health-care policy planners, physicians and other health professionals. Texas Cancer Information is funded by the Cancer Prevention and Research Institute of Texas (formerly the Texas Cancer Council) and The UT M. D. Anderson Cancer Center.

Since its inception in 1986, the project has provided reliable cancer data and resources for in-state users. Texas Cancer Information's mission is to empower Texans with the knowledge needed to reduce the impact of cancer.

Accurate, Updated Information

- Physicians and other health providers
- Cancer risk factors, screening, early detection, treatment and continuing care
- Health-care facilities and services, including hospitals, cancer centers, mammography services, colorectal cancer screening services, home health agencies and hospice care
- Access to cancer care for low-income/uninsured patients, survivorship and support resources
- Community cancer resources and coalitions, cancer statistics and regional profiles; and an inventory of cancer prevention and control programs, comprehensive cancer control resources and coalitions

Survivorship

With nearly 12 million cancer survivors now living in the United States, Texas Cancer Information created a new Survivorship portal to help meet the needs of cancer survivors and caregivers. The *texascancersurvivor.info* Web portal contains links to Web sites and publications that have been reviewed for quality using predetermined criteria. Links were reviewed by the Survivorship Subcommittee of the Texas Comprehensive Cancer Control Coalition for survivorship content and categorized into over 30 emotional, physical and practical/economic topics, such as finding support, pain management and insurance. Visit the portal at *www.texascancersurvivor.info*.

Access to Cancer Care

Access to Cancer Care for Low-Income and Uninsured Patients is another addition to Texas Cancer Information that provides information for social workers, case managers, patients and others who are seeking options for uninsured individuals throughout the state. Access to Cancer Care offers uninsured Texans information about resources available in their counties.

Currently, information for 22 Texas counties is available on Texas Cancer Information, with information for additional counties in progress.

Texas Cancer Information Maintains Web Sites

- **Cancer Prevention and Research Institute of Texas** (*www.cprit.state.tx.us*)

  The Cancer Prevention and Research Institute of Texas (formerly the Texas Cancer Council) Web site contains information about the Institute, past and current initiatives funded by the Institute and Council, funding opportunities and online publications about cancer control issues.

- **Texans Conquer Cancer** (*www.texansconquercancer.org*)

  The Texans Conquer Cancer specialty license plate benefits nonprofit organizations providing services to Texas cancer patients needing assistance during their cancer fight. This Web site includes an application to purchase the license plate, as well as information about the program.

- **Texas Comprehensive Cancer Control Coalition** (*www.texascancercoalition.org*)

  The Texas Comprehensive Cancer Control Coalition works to promote, enhance and expand all public and private partners' efforts that focus on cancer prevention, early detection, screening and other related efforts.

- **Texas Cancer Control Toolkit** (*www.texascancertoolkit.org*)

  The Texas Cancer Control Toolkit can help communities organize to heighten awareness of cancer issues, save lives and, ultimately, decrease the burden of cancer. Communities can impact cancer incidence and mortality rates by applying a comprehensive approach in a collaborative environment.

Cancer Therapy & Research Center at The University of Texas Health Science Center at San Antonio

The Cancer Therapy & Research Center (CTRC) at The University of Texas Health Science Center at San Antonio is one of the nation's leading academic cancer research and treatment centers, and the only such facility serving the more than 4.4 million people in the high-growth corridor of Central and South Texas including Austin, San Antonio, Laredo and the Rio Grande Valley.

The CTRC is one of the most successful cancer centers in the country, with the newest drugs, world-class specialists, advanced treatments, and more cancer-specific resources than just about anyone in the country. As a result, the CTRC is an NCI-designated Cancer Center, and the only one in South Texas.

Comprehensive Patient Care

- CTRC offers a full spectrum of clinical and support services to meet the medical, nutritional, emotional and spiritual needs *of the patient,* from diagnosis through treatment, rehabilitation, discharge and follow-up care.
- CTRC physicians come together in one central location to treat patients as a team in disease-specific multidisciplinary clinics. This structure brings together all necessary medical specialists — including medical oncologists, radiation oncologists and surgical oncologists — to build the treatment team around the patient in a convenient, one-stop approach.
- CTRC treats cancer in all its forms, while offering specialized treatment teams at seven disease-specific multidisciplinary clinics: the Breast Clinic; Genitourinary Clinic; Geriatric Oncology Clinic; Sarcoma Clinic; Neuro-Oncology Clinic, Head & Neck Cancer Clinic, and Thoracic Clinic. At these clinics, patients are treated not by generalists, but by physicians and staff specially trained in these particular types of cancer.

Internationally Renowned Cancer Research

- The CTRC's principal research division, The Institute for Drug Development (IDD), works with pharmaceutical and biotechnology companies around the nation to identify and develop promising new cancer drugs.
- The CTRC accelerates the development of anticancer agents by integrating basic, translational and clinical research. Many hundreds of anticancer agents have been tested here and many of the most important and effective cancer drugs currently in use today were either developed or first tested at CTRC.
- The IDD is home to the world's premier Phase I clinical studies program for evaluating new cancer drugs. Phase I clinical studies represent the first time that a new compound is used in a patient, the initial step toward approval from the Food & Drug Administration. These studies serve to assess the safety and appropriate dosage of new cancer drugs in humans.
- Each year, more than 500 patients from around the country come to CTRC to participate in clinical trials. During the past five years, more than 3,000 patients have been treated on new drug protocols here. At any given time, the CTRC is testing as many as 100 new drugs.

Dan L. Duncan Cancer Center at Baylor College of Medicine

In 2007, the Dan L. Duncan Cancer Center at Baylor College of Medicine in Houston was named a designated cancer center by the National Cancer Institute (NCI), in recognition of its ability to make significant contributions to cancer research, prevention and treatment.

The Duncan Cancer Center is a consortium made up of Baylor College of Medicine, three primary teaching hospital affiliates in the Texas Medical Center — Ben Taub General Hospital, Michael E. DeBakey Veterans Affairs Medical Center, Texas Children's Hospital and Cancer Center — and the Baylor Clinic. With its tremendous strengths in research and large, diverse patient base, the Duncan Cancer Center is uniquely positioned to translate the latest scientific advancements into better care and treatment for a broad range of cancer patients.

Patient Care

The Duncan Cancer Center provides compassionate, state-of-the-art care to a broad spectrum of pediatric and adult cancer patients, treating over 4,000 new patients each year. Through the Center's patient care experience at several diverse hospitals and outpatient centers, the physicians and researchers gain a keen understanding of cancer's impact on society and the needs of all those afflicted. Forty percent of those participating in and benefiting from our clinical trials program are from minority or underrepresented populations.

The Center's commitment to the highest-quality patient care will continue as it expands services into the new Baylor Clinic and Hospital, a combined adult teaching hospital and outpatient center slated to open in 2011. The Duncan Cancer Center will be an integral part of Baylor College of Medicine's new healthcare campus, with all cancer services designed around the concept of comprehensive, multidisciplinary, disease-focused patient care, such as those currently delivered in Baylor College of Medicine's Lester and Sue Smith Breast Center.

Research

Researchers at Baylor College of Medicine are saving lives through science. The College is internationally recognized for its basic science programs in cancer research and is home to one of three National Institutes of Health (NIH) Human Genome Centers in the United States. Baylor College of Medicine ranks number one in Texas for NIH funding for biomedical research and number two in the nation in federal funding for research and development in the biological sciences at universities and colleges by the National Science Foundation. The total cancer-related research funding exceeds $85 million annually, including about $38 million from the National Cancer Institute. This places the Duncan Cancer Center in the top third of the 63 NCI-designated cancer centers for NCI support. The researchers and physicians of the Duncan Cancer Center are dedicated to using the Center's exceptional resources to better understand the causes of cancer and how the disease progresses, translating that knowledge into new ways to prevent, diagnose, sub-classify, and precisely treat each patient's specific cancer, for truly personalized care.

Research at the Dan L. Duncan Cancer Center is organized around eight outstanding programs: breast cancer, cancer biology, cancer prevention and population sciences, cell and gene therapy, molecular carcinogenesis, nuclear receptor biology, pediatric oncology, and prostate cancer.

Education

Baylor College of Medicine, including its Graduate School of Biomedical Sciences and its affiliated teaching hospitals, offers an unparalleled training ground, transforming today's students into tomorrow's leaders in healthcare delivery and research. The College consistently ranks among the country's leading medical schools. In its annual survey, *U.S. News & World Report** ranked Baylor College of Medicine 7th overall among the nation's top medical schools for primary care and 13th for research.

Currently, Baylor College of Medicine trains more than 3,000 medical, graduate, nurse anesthesia, and physician assistant students, as well as residents and post-doctoral fellows. Baylor College of Medicine offers graduate medical education programs in all the major cancer subspecialties.

* *U.S. News and World Report America's Best Graduate Schools 2009*

The University of Texas M. D. Anderson Cancer Center

Celebrating more than six decades of Making Cancer History®, The University of Texas M. D. Anderson Cancer Center is located in Houston on the campus of the Texas Medical Center. It is one of the world's most respected centers devoted exclusively to cancer patient care, research, education and prevention.

M. D. Anderson Cancer Center was created by the Texas Legislature in 1941 as a component of The University of Texas System. The institution is one of the nation's original three Comprehensive Cancer Centers designated by the National Cancer Act of 1971, and is one of 39 NCI-designated Comprehensive Cancer Centers today.

In 2008, *U.S. News and World Report's* "America's Best Hospitals", survey ranked M. D. Anderson as the top hospital in the nation for cancer care. M. D. Anderson has achieved the top ranking four times in the last 5 years and has ranked as one of the top two hospitals for cancer care for 19 years, since the magazine began its annual survey in 1990.

Patient Care

Since 1944, more than 700,000 patients have turned to M. D. Anderson for cancer care in the form of surgery, chemotherapy, radiation therapy, immunotherapy, or combinations of these and other treatments. This multidisciplinary approach to treating cancer was pioneered at M. D. Anderson. Because they focus only on cancer, experts here are renowned for their ability to treat all types of cancer, including rare or uncommon diseases.

In 2008, more than 85,000 people with cancer will receive care at M. D. Anderson, and more than 27,000 of them will be new patients. About one third of these patients come from outside Texas seeking the knowledge-based care that has made M. D. Anderson so widely respected. More than 11,000 patients participated in therapeutic clinical research exploring novel treatments in Fiscal Year 2006, making it the largest such program in the nation.

M. D. Anderson holds accreditation from the Joint Commission. In 2006, M. D. Anderson received Magnet Nursing Services Recognition from the American Nurses Credentialing Center, an honor it first received in 2001.

Research

At M. D. Anderson, important scientific knowledge gained in the laboratory is rapidly translated into clinical care. In 2008, the institution invested nearly $445 million in research, an increase of about 70% in the past 5 years. M. D. Anderson ranks first in the number of grants awarded and total amount of grants given by the NCI. M. D. Anderson holds 11 NCI Specialized Programs of Research Excellence grants: bladder, brain, breast, endometrial, head and neck, leukemia, lung, melanoma, ovarian, pancreatic, and prostate cancer. The research program is considered one of the most productive efforts in the world aimed solely at cancer.

In September 2005, M. D. Anderson opened the Red and Charline McCombs Institute for the Early Detection and Treatment of Cancer. As the most aggressive expansion of research in M. D. Anderson's history, the institute comprises six unique centers focused on genomics, proteomics, screening, diagnostic imaging, biotechnology and proton therapy. Located on the 116-acre University of Texas Research Park about 1.5 miles south of the main campus, the McCombs Institute will house about 25% of M. D. Anderson's research activities.

Education

Each year, more than 5,500 students take part in educational programs, which include physicians, scientists, nurses and many health professionals. M. D. Anderson offers bachelor's degrees in seven allied health disciplines.

Nearly 1,000 clinical residents and fellows come to M. D. Anderson each year to receive specialized training in the investigation and treatment of cancer. More than 500 graduate students are working on advanced degrees at the Graduate School of Biomedical Sciences, which M. D. Anderson operates jointly with The University of Texas Health Science Center at Houston. More than 1,000 research fellows are being trained in M. D. Anderson's laboratories and clinics.

Thousands more participate in continuing education and distance learning opportunities sponsored by M. D. Anderson, sharing knowledge around the globe. M. D. Anderson provides public education programs to teach healthy people about cancer symptoms and risk factors, giving them information that might one day aid them in making critical health care decisions.

Prevention

Recognizing that prevention is the best way to eliminate the threat of cancer, M. D. Anderson has initiated a multifaceted effort. Expanded research efforts in epidemiology and behavioral sciences complement achievements made in clinical cancer prevention. Laboratory activities support developmental and practical applications of cancer prevention. A new research program focuses attention on disparities in prevention and care among ethnic minorities and medically underserved populations.

The Cancer Prevention Center provides comprehensive cancer screening services, including cancer risk assessment, screening exams based on age and gender, personalized risk reduction strategies, genetic testing, chemoprevention, tobacco cessation, and nutrition counseling.

Data Sources and Technical Notes

Data Sources

Texas cancer incidence data are based on cases reported to the Texas Cancer Registry, a legislatively mandated, statewide, population-based cancer registry implemented in 1979, and located within the Texas DSHS. Texas mortality data are based on information collected by the Department's Center for Health Statistics and compiled by the TCR. Cancer incidence, mortality, and staging analyses were performed by the TCR. National cancer incidence, mortality and survival data are based on published data from the NCI SEER Program, the CDC National Program of Cancer Registries and the ACS National Home Office.

The expected number of cancers in 2008 (all malignant cancers plus in situ bladder) were estimated by the TCR by applying California 2000-2004 age, sex, and race/ethnic incidence rates to the 2008 Texas population. Projected 2008 cancer deaths are estimated by applying Texas 2003-2004 age, sex, and race/ethnicity-specific average annual mortality rates to the 2008 Texas population. More detailed information, including county level incidence and mortality data, can be found in TCR electronic and printed publications on-line at *www.dshs.state.tx.us/tcr* or *www.cancer-rates.info/tx*.

Overweight, nutrition, smoking and cancer screening data for adults are from the 2006 and 2007 Texas Behavioral Risk Factor Surveillance System Surveys, which are collaborations between the CDC and the Texas DSHS CHS. Data on youth obesity, nutrition, smoking behavior, and physical activity are from the 2007 Texas Youth Risk Behavioral Surveillance System, also a cooperative effort between the Texas DSHS and the CDC. Information regarding distribution of cancer resources throughout the state was provided by Texas Cancer Information.

Age-adjustment of Data

The risk of cancer increases with age. Age-adjustment is a statistical procedure that eliminates the effects of differences in the age structure between populations and allows direct comparison of incidence and mortality rates for these populations. In this publication, all rates are age-adjusted to the 2000 US standard million population utilizing 19 age-groupings. Comparisons to other published data using a different standard population (e.g. the 1970 US standard million population) should be avoided because they may lead to erroneous conclusions.

Demographic Data

Population data used in the calculation of age-adjusted rates and for presenting stage demographics were provided by the US Census Bureau's Population Estimates Program and modified by the NCI using the special processing procedures for counties affected by Hurricane's Rita and Katrina (as described on the SEER website: *http://seer.cancer.gov/popdata/*). Population data by age, sex, race and ethnicity represent the 2000 US Bureau of the Census classification by race and ethnicity and are consistent with the NCI SEER Program. For this report, these groups are referred to as non-Hispanic white (white of non-Hispanic/non-Spanish origin), black, Hispanic, and Asian or Pacific Islander. For the presentation of risk factor data, the "Other" group includes Asian/Pacific Islanders, American Indian/Alaska Native and people of other races. Hispanic ethnicity is derived from the North American Association of Central Cancer Registries (NAACCR) Hispanic Identification Algorithm (NHIA) and is not mutually exclusive from race.

Texas population data used to calculate projected cancer cases were provided by the CHS; data used to present state demographics were available from the Texas State Data Center at the University of Texas at San Antonio and from Thomson Medstat, Claritas Inc. Population demographics are 2007 estimates based on the 2000 US Census.

References

1. American Cancer Society. *Cancer Facts and Figures 2008*. Atlanta, GA: American Cancer Society, 2008.

2. Centers for Disease Control and Prevention, National Program of Cancer Registries. *United States Cancer Statistics 1999-2004*, *http://apps.nccd.cdc.gov/uscs*.

3. Ries LAG, Melbert D, Krapcho M, Stinchcomb DG, Howlader N, Horner MJ, Mariotto A, Miller BA, Feuer EJ, Altekruse SF, Lewis DR, Clegg L, Eisner MP, Reichman M, Edwards BK (eds). SEER Cancer Statistics Review, 1975-2005, National Cancer Institute. Bethesda, MD, *http://seer.cancer.gov/csr/1975_2005/*, based on November 2007 SEER data submission, posted to the SEER web site, 2008.

4. National Cancer Institute. *The Nation's Investment in Cancer Research — Connecting the Cancer Community — An Annual Plan and Budget Proposal for Fiscal Year 2009*, *http://plan.cancer.gov*.

5. Albano JD, Ward E, Jemal A, Anderson R, Cokkinides VE, Murray T, Henley J, Liff J, Thun MJ. Cancer mortality in the United States by education level and race. *J Natl Cancer Inst* 2007;99(18):1384-94.

6. Texas State Data Center and Office of the State Demographer. 2006 Population Projections. *http://txsdc.utsa.edu/tpepp/2006projections/summary/*.

7. Center to Reduce Cancer Health Disparities. National Cancer Institute, 2004. Website: *http://crchd.nci.nih.gov/*.

→

8. Texas Health and Human Services Commission, *Demographic Profile: Texas by Poverty Income Status in 2006*, March 2007 CPS report using 2006 data. Data compiled by Research and Evaluation Department, Center for Strategic Support, December 2007.

9. Ward E, Halpern M, Schrag N, Cokkinides V, DeSantis C, Bandi Priti, Siegel R, Stewart A, Jemal A. Association of insurance with cancer care utilization and outcomes. *CA Cancer J Clin* 2008;58:9-31.

10. Robert Wood Johnson Foundation, May 2004 (*http://www.rwjf.org/research/*).

11. Institute of Medicine. *From Cancer Patient to Survivor: Lost in Transition*. Washington, DC: National Academy Press, 2005, *http://www.nap.edu*.

12. Institute of Medicine. Cancer Care for the Whole Patient: Meeting Psychosocial Health Needs. Washington, DC: National Academy Press, 2007, *http://www.nap.edu*.

13. Williams MA, Mokry B, Risser D, Betts P, Weiss NS (eds). *Cervical Cancer in Texas 2006*. Austin, TX: Texas Department of State Health Services, December 2006.

14. Schottenfeld D, Fraumeni, JFJr. (eds.) *Cancer Epidemiology and Prevention*. New York: Oxford University Press, 1996.

15. Mayberry RM, Coates RJ, Hill HA, Click LA, Chen VW, Austin DF, Redmond CK, Fenoglio-Presier CM, Hunter CP, Haynes MA, Muss HB, Wesley MN, Greenberg RS, Edwards BK. Determinants of black/white differences in colon cancer survival. *JNCI* 1995;87(22):1686-1693.

16. US Department of Health and Human Services. *The Health Consequences of Smoking — A Report of the Surgeon General*. Rockville, MD: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2004.

17. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics. *CA Cancer J Clin* 2005; 55:74-108.

18. Centers for Disease Control and Prevention. Annual smoking-attributable mortality, years of potential life lost, and productivity losses — United States, 1997-2001. *Morbidity and Mortality Weekly Report* 2005;54:625-628.

19. Williams MA, Risser DR, Betts P, Weiss NS. *Tobacco and Cancer in Texas*, 1998-2002. Austin, Texas: Texas Cancer Registry, Texas Department of State Health Services, July 2006.

20. US Department of Health and Human Services. *The Health Consequences of Involuntary Exposure to Tobacco Smoke: A report of the Surgeon General*. Rockville MD: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, 2006.

21. Harvard Center for Cancer Prevention. Harvard report on cancer prevention volume 1: causes of human cancer. *Cancer Causes and Control* 1996;7:S55.

22. Armstrong B, Kricker A, English D. Sun exposure and skin cancer. *Australas J Dermatol* 1997;38(Suppl 1):S1-6.

23. American Cancer Society. *Cancer Facts & Figures 2008*. Atlanta GA: American Cancer Society 2008.

24. Geller AC, Annas G. Epidemiology of melanoma and nonmelanoma skin cancer. *Semin Oncol Nurs* 2003;19(1):2-11.

25. Centers for Disease Control and Prevention. Guidelines for school programs to prevent skin cancers. *Morbidity and Mortality Weekly Report* 2002;51(RR-4):1-18.

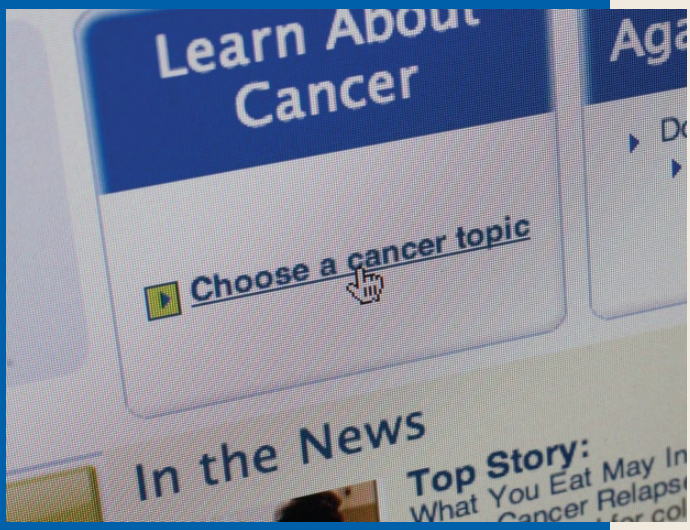
26. Bleyer A, O'Leary M, Barr R, et al: *Cancer Epidemiology in Older Adolescents and Young Adults 15 to 29 Years of Age, Including SEER Incidence and Survival: 1975-2000*. Bethesda, MD, National Institutes of Health, 2006.

27. Bleyer A: Older adolescents with cancer in North America — deficits in outcome and research. *Pediatr Clin North Am* 2002;49:1027-1042.

28. Tomatis L, Melnick RL, Haseman J, et al. Alleged "misconceptions" distort perceptions of environmental cancer risks. *FASEBJ* 2001;15:195-203.

29. National Toxicology Program 11th Report on Carcinogens. Research Triangle Park; 2005.

30. Cokkinides V, Bandi P, Siegel R, Ward EM, Thun MJ. *Cancer Prevention & Early Detection Facts & Figures 2008*. Atlanta GA: American Cancer Society, 2007.



Cancer and Data-related Web Sites for this Publication

American Cancer Society (ACS)
1-800-ACS-2345 (1-800-227-2345)
www.cancer.org

American Cancer Society Cancer Action Network (CAN)
www.asccan.org

American Cancer Society Great American Health Challenge®
www.cancer.org/GreatAmericans

American Cancer Society School Health
www.schoolhealth.info/

American Cancer Society Workplace Health Promotion
www.fightcancer.org

American College of Surgeons-Commission on Cancer
www.facs.org

Behavioral Risk Factor Surveillance System
Centers for Disease Control and Prevention (CDC)
www.cdc.gov/brfss/

Breast and Cervical Cancer Services (BCCS)
Texas Department of State Health Services
www.dshs.state.tx.us/bcccs/

Tobacco Prevention and Control
Texas Department of State Health Services
www.dshs.state.tx.us/tobacco/

Cancer Gateway of Texas
www.cancergateway.org

Cancer Prevention and Research Institute of Texas*
www.cprit.state.tx.us

Center for Health Statistics (CHS)
Texas Department of State Health Services
www.dshs.state.tx.us/chs/

Centers for Disease Control and Prevention (CDC)
www.cdc.gov

Clinical Trials
www.cancer.org
www.cancer.gov/clinicaltrials

Intercultural Cancer Council
www.iccnetwork.org

National Cancer Institute (NCI)
www.cancer.gov

National Center for Health Statistics
Centers for Disease Control and Prevention (CDC)
www.cdc.gov/nchs/

Texas Behavioral Risk Factor Surveillance System
Community Assessment Team, CHS, Texas Department of State Health Services
www.dshs.state.tx.us/chs/brfss/

Texas Cancer Data Query System
Texas Department of State Health Services
www.cancer-rates.info/tx

Texas Cancer Information (TCI)
www.texascancer.info

Texas Cancer Registry (TCR)
Texas Department of State Health Services
www.dshs.state.tx.us/tcr/

Texas Comprehensive Cancer Control Coalition
www.texascancercoalition.org

Texas Comprehensive Cancer Control Program
Texas Department of State Health Services
www.dshs.state.tx.us/tcccp/

Texas Department of State Health Services
www.dshs.state.tx.us

Texas Nutrition, Physical Activity and Obesity Prevention Program
Texas Department of State Health Services
www.dshs.state.tx.us/tobesity/

Texas Pain Advocacy & Information Network
www.aspi.wisc.edu/acstxpi/

Texas Partnership for End-of-Life Care
www.txpec.org

Texas State Data Center (TSDC)
http://txsdc.utsa.edu/

NCI Designated Cancer Centers

Cancer Therapy and Research Center at UTHSC at San Antonio
www.saci.uthscsa.edu

Dan L. Duncan Cancer Center at Baylor College of Medicine
www.bcm.edu/cancercenter/

The University of Texas M.D. Anderson Cancer Center
www.mdanderson.org

*Note: * At the time* Texas Cancer Facts & Figures 2008 *went to press, the new Cancer Prevention and Research Institute of Texas was being established, Incorporating the functions of the previous Texas Cancer Council and expanding cancer prevention and research activities.*

American Cancer Society®

High Plains Division

Cancer Information

1-800-ACS-2345
www.cancer.org

8/08 – 1498